EXHIBIT A

STATES POSTAL SERVICE

First-Class Mail
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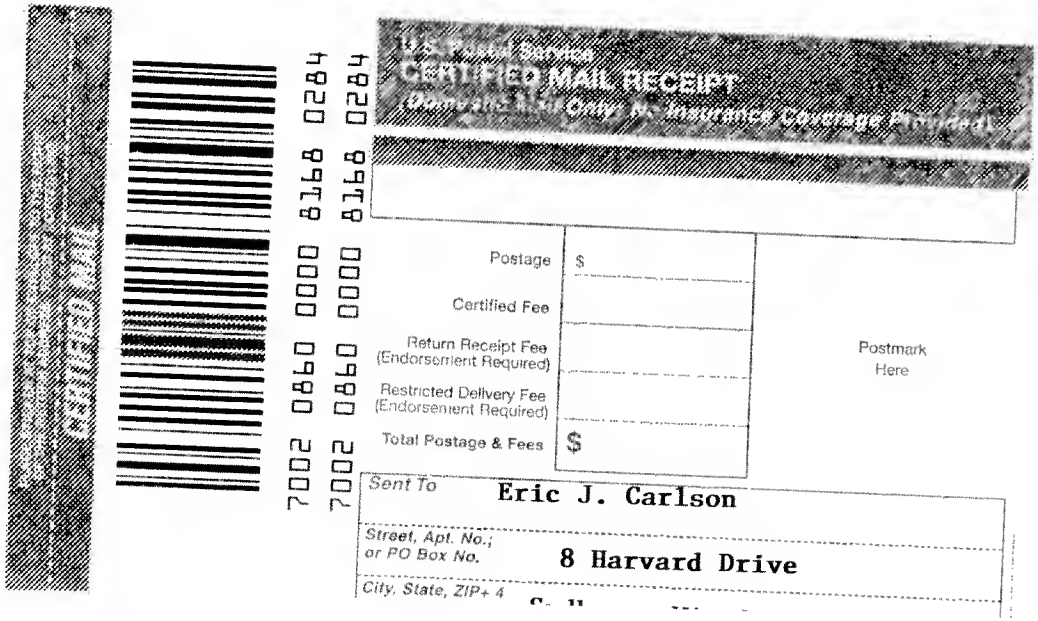
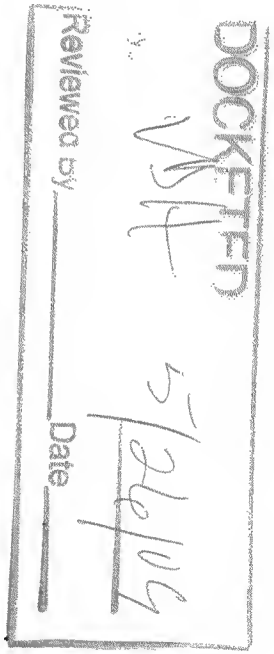
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Robert Neufeld
King & Spalding
1180 Peachtree Street
Atlanta, GA 30309

5595 13058/105001





KING & SPALDING

King & Spalding LLP
1180 Peachtree Street, NE
Atlanta, Georgia 30309-3521
www.kslaw.com

Robert T. Neufeld
Direct Dial: (404) 572-3505
Direct Fax: (404) 572-5134
bneufeld@kslaw.com

May 21, 2009

VIA CERTIFIED U.S. MAIL

Mr. Eric J. Carlson
8 Harvard Drive
Sudbury, MA 01776

Re: U.S. Patent No. 6,343,063 and
Reissue U.S. Patent Application Serial No. 10/767,961

Dear Mr. Carlson:

My firm represents Flexplay Technologies, Inc. in connection with the above-referenced patent and reissue patent application. As you may recall, you were contacted approximately five years ago concerning signing certain papers for filing the reissue patent application. The U.S. Patent and Trademark Office ("Patent Office") now is preparing to grant the reissue patent application. In connection with the grant of the reissue application, the Patent Office is requesting that we submit new declarations from each of the inventors.

We are requesting your assistance in reviewing the enclosed documents and signing the enclosed reissue declaration. Enclosed for your review are the following papers:

1. an engagement letter setting forth the terms under which we propose to compensate you for your time in reviewing the enclosed materials;

2. a copy of the assignment of your rights in the invention to Quixote Corp., predecessor in interest to the current assignee, Flexplay Technologies, Inc.;

3. a copy of the reissue patent application as filed, which includes a copy of U.S. Patent No. 6,343,063;

4. a copy of the current claim set pending in the reissue patent application and reflecting the amendments to the claims; and

5. a reissue declaration (and attached addendum) for your review and signature.

We ask that you review the engagement letter (#1) and if the terms of the proposed engagement are agreeable, please return the signed engagement letter to me in the enclosed addressed and stamped envelope.

Upon receipt of your signed engagement letter, Flexplay will send to you the $1,000 retainer against which you can bill your time and expenses. After you complete your review of the enclosed materials, please sign the reissue declaration and addendum (#5) and return the signed papers to me in the second enclosed addressed and stamped envelope.

Please feel free to call me at the number identified above with any questions. Thank you for your time.

Sincerely,

Robert T. Neufeld

RTN/llh

cc: M. Scott Carey, Esq.

May 21, 2009

Mr. Eric J. Carlson
8 Harvard Drive
Sudbury, MA 01776

Re: U.S. Patent No. 6,343,063 and
Reissue U.S. Patent Application Serial No. 10/767,961

Dear Mr. Carlson:

Engagement

1.1 This letter confirms our engagement agreement (the "Engagement") pursuant to which you have been retained by Flexplay Technologies, Inc., ("Flexplay") to perform, and you have agreed to perform, certain review services in connection with the above-referenced patent and reissue patent application.

Fees

1.2 Your rate will be $200 per hour.

Expenses, if applicable, are billed in addition to fees. In no event shall your fees and expenses exceed $1,000, unless Flexplay has provided you written authorization to do so.

Upon signing and returning this agreement, you will be provided a retainer of one thousand ($1,000) USD against which you will bill your time and expenses.

1.3 Unless instructed otherwise in writing, you shall bill Flexplay upon the completion of your work and your invoice shall include a description of the tasks performed and hours worked by you on the Engagement as well as a statement of the total amount of out-of-pocket expenses and disbursements incurred with subtotals by category. You are required to attach the appropriate receipts or records for such expenses and disbursements.

1.4 Flexplay will process your bills promptly and, to the extent any agreed upon additional fees or expenses beyond the $1,000 retainer are owed to you, Flexplay will remit payment to you within thirty (30) days after an invoice is received. Payments will be sent to you at 8 Harvard Drive, Sudbury, MA 01776.

Confidentiality

1.5 All work performed and materials and work product of any kind generated in furtherance of the Engagement will be deemed to be confidential.

1.6 Accordingly, you will treat and maintain as confidential all information, documents, materials, and work product that are, have been, or will be generated or created by you or communicated or provided to you by Flexplay or King & Spalding relating to any activity or project undertaken as part of the Engagement and you will not reveal any such information, documents, materials, or work product to any person or utilize any of them in any way except as directed or approved by King & Spalding and/or Flexplay; provided, however, that you may reveal such information, documents, materials, or work product pursuant to government process after prior notice to King & Spalding when possible and to the extent permissible by law under the circumstances to afford King & Spalding and/or Flexplay an opportunity to challenge such process at the discretion and expense of King & Spalding and/or Flexplay.

Ownership

1.7 You claim no ownership rights in the reissue applications, such rights in the invention having been previously assigned to Quixote and subsequently to Flexplay. Flexplay shall own all right in the inventions disclosed in the subject patent applications.

Completion Date

1.8 You understand that all work associated with reviewing the reissue application and current claim set is time sensitive. You agree to complete your review and to return the signed reissue declaration to King & Spalding no later than **June 30, 2009**.

Effective Date, Term and Termination

1.9 The Engagement and terms of this letter shall be deemed to be effective as of May 21, 2009.

1.10 Flexplay may terminate the Engagement at any time. Upon notice of termination, you will stop work immediately. Flexplay will be responsible for all previously agreed upon fees and expenses incurred prior to your stopping work.

1.11 The agreements, terms, and understandings set forth in the Engagement shall survive the termination of any and all work performed pursuant to the Engagement.

Savings and Headings

1.12 Should any part of the Engagement be rendered or declared illegal, legally invalid, or unenforceable by a court of competent jurisdiction or by the decision of an authorized governmental agency, such invalidation of such part of the Engagement shall not invalidate the remaining portions thereof.

1.13 Section headings are for convenience only and are not part of the Engagement.

Execution of the Engagement

1.14 The Engagement may be executed in one or more counterparts, all of which together shall constitute one and the same agreement and each of which shall be an original.

We look forward to working with you in connection with your engagement.

Very truly yours,

Flexplay Technologies, Inc.

By: M. Scott Carey by RTS of power
M. Scott Carey, Esq.

The above sets forth the terms of the engagement and is agreed to on behalf of the addressee, as indicated below.

Dated:_____

_____
Mr. Eric J. Carlson

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SEPTEMBER 11, 1997

PTAS

100518258A

BRINKS HOFER GILSON & LIONE
WILLIAM A. WEBB
P.O. BO 10395
CHICAGO, IL 60610

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, NORTH TOWER BUILDING, SUITE 10C35, WASHINGTON, D.C. 20231.

RECORDATION DATE: 07/30/1997

REEL/FRAME: 8653/0912
NUMBER OF PAGES: 14

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
ROLLHAUS, PHILIP E. DOC DATE: 07/25/1997

ASSIGNOR:
POWELL, JOHN R. DOC DATE: 07/22/1997

ASSIGNOR:
CARLSON, ERIC J. DOC DATE: 07/25/1997

ASSIGNOR:
EHNTHOLDT, DANIEL J. DOC DATE: 07/22/1997

ASSIGNOR:
WINKLER, IRWIN C. DOC DATE: 07/18/1997

ASSIGNOR:
MARMO, CHRISTOPHER DOC DATE: 07/18/1997

ASSIGNOR:
VALENTINE, JAMES R. DOC DATE: 07/22/1997

ASSIGNEE:
QUIXOTE CORPORATION
ONE EAST WACKER DRIVE
CHICAGO, ILLINOIS 60601

SERIAL NUMBER: 08902844
PATENT NUMBER:

FILING DATE:
ISSUE DATE:

SHARMALLA SIMPSON, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

08-27-1997

PATENTS ONLY

TO THE COMMISSIONER OF PATENTS AND TRADEMARKS

PATENTS ONLY

Please record the attached original document or copy thereof.

100518258

1. Name of Party(ies) conveying an interest:

65373 U.S. PTO
07/30/97

Philip E. Rollhaus
John R. Powell
Eric J. Carlson

Additional name(s) of conveying party(ies) attached? ☒ Yes ☐ No

2. Name and Address of Party(ies) receiving an interest:

Name: Quixote Corporation
Internal Address:
Street Address: One East Wacker Drive
City: Chicago, Illinois
State/Zip: 60601

66352 U.S. PTO
08/902844
07/30/97

Additional name(s) and addresses attached? ☐ Yes ☒ No

3. Description of the interest conveyed:

☒ Assignment ☐ Change of Name Other:

☐ Security Agreement ☐ Merger

Execution Date: July 18, July 22 and July 25, 1997

4. Application number(s) or patent number(s). Additional sheet attached? ☐ Yes ☒ No

If this document is being filed together with a new application, the execution date of the application is:

July 18, July 22 and July 25, 1997
Date

A. Patent Application No.(s)

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610
(312)321-4200

6. Number of applications and patents involved: 1

7. Total fee (37 CFR 3.41) $ 80
☒ Enclosed
☐ Authorized to be charged to Deposit Account No. 23-1925

8. ☒ Please charge any deficiencies in fee or credit any overpayment to Deposit Account No. 23-1925.

DO NOT USE THIS SPACE

9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

William A. Webb
Name of Person Signing

Signature

Date

Total number of pages including cover sheet, attachments, and document: 14

Rev. Feb-97

C:\ALL\WAWPAT51\112-152 Recordal of Assignment.doc

08/26/1997 TTOWN11 00000228 08902844
01 FC:581 40.00 OP

08/26/1997 TTOWN11 00000228 08902844
01 FC:581 40.00 OP

RECORDAL OF ASSIGNMENT

Patents Only

1. Additional Name of Parties conveying an interest:

Daniel J. Ehntholdt
Irwin C. Winkler
Christopher J. Marmo
James R. Valentine

Case No. 112/152

ASSIGNMENT

WHEREAS, Philip E. Rollhaus, John R. Powell, Eric J. Carlson, Daniel J. Ehntholdt, Irwin C. Winkler, , Christopher J. Marmo and James R. Valentine, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled Machine-Readable Optical Disc with Reading-Inhibit Agent, executed by Assignors on the same date as this Assignment;

WHEREAS, Quixote Corporation, a corporation having a place of business at Chicago, Illinois, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents therefor in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or

patent; and that the Assignors will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: 7/25/97 — Philip E. Rollhaus

DATED: _____ — John R. Powell

DATED: _____ — Eric J. Carlson

DATED: _____ — Daniel J. Ehntholdt

DATED: _____ — Irwin C. Winkler

DATED: _____ — Christopher J. Marmo

DATED: _____ — James R. Valentine

STATE OF Illinois)
) ss.
COUNTY OF Cook)

I, Sharon P. Cole, A Notary Public in and for the County and State aforesaid, do hereby certify that Philip E. Rollhaus, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 25th day of July, 1997.

(SEAL)

OFFICIAL SEAL
SHARON P COLE
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES:04/09/00

Sharon P. Cole
Notary Public

My Commission Expires:

STATE OF)
) ss.
COUNTY OF)

I, _____, A Notary Public in and for the County and State aforesaid, do hereby certify that John R. Powell, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of , 1997.

_____
Notary Public

(SEAL)

My Commission Expires:

STATE OF)
) ss.
COUNTY OF)

I, _____, A Notary Public in and for the County and State aforesaid, do hereby certify that Eric J. Carlson, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of , 1997.

_____
Notary Public

(SEAL)

My Commission Expires:

STATE OF)
) ss.
COUNTY OF)

I, _____, A Notary Public in and for the County and State aforesaid, do hereby certify that Daniel J. Elintholdt, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of , 1997.

_____
Notary Public

(SEAL)

My Commission Expires:

STATE OF)
) ss.
COUNTY OF)

I, _____, A Notary Public in and for the County and State aforesaid, do hereby certify that Irwin C. Winkler, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of , 1997.

_____
Notary Public

(SEAL)

My Commission Expires:

STATE OF)
) ss.
COUNTY OF)

I, _____, A Notary Public in and for the County and State aforesaid, do hereby certify that Christopher J. Marmo, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of , 1997.

_____
Notary Public

(SEAL)

My Commission Expires:

STATE OF)
) ss.
COUNTY OF)

I, _____, A Notary Public in and for the County and State aforesaid, do hereby certify that James R. Valentine, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of , 1997.

_____
Notary Public

(SEAL)

My Commission Expires:

Case No. 112/152

ASSIGNMENT

WHEREAS, Philip E. Rollhaus, John R. Powell, Eric J. Carlson, Daniel J. Ehntholdt, Irwin C. Winkler, , Christopher J. Marmo and James R. Valentine, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled Machine-Readable Optical Disc with Reading-Inhibit Agent, executed by Assignors on the same date as this Assignment;

WHEREAS, Quixote Corporation, a corporation having a place of business at Chicago, Illinois, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents therefor in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

The Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or

patent; and that the Assignors will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED: _____ _____
Philip E. Rollhaus

DATED: 7/22/97 _____
John R. Powell

DATED: 7/22/97 _____
Eric J. Carlson

DATED: 7/22/97 _____
Daniel J. ~~Ehntholdt~~ EHNTHOLT

DATED: 7/18/97 _____
Irwin C. Winkler

DATED: 7/18/97 _____
Christopher J. Marino

DATED: 7/22/97 _____
James R. Valentine

STATE OF Massachusetts)
) ss.
COUNTY OF Middlesex)

I, Dr. Anne Troutman A Notary Public in and for the County and State aforesaid, do hereby certify that Philip E. Rollhaus, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 22nd day of July, 1997.

Notary Public

(SEAL)

My Commission Expires: January 24, 2003

STATE OF Massachusetts)
) ss.
COUNTY OF Middlesex)

I, Dr. Anne Troutman A Notary Public in and for the County and State aforesaid, do hereby certify that John R. Powell, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 22nd day of July, 1997.

Anne O'Brien Troutman
Notary Public

(SEAL)

My Commission Expires: January 24, 2003

STATE OF Massachusetts)
) ss.
COUNTY OF Middlesex)

I, Dr. Anne Troutman, A Notary Public in and for the County and State aforesaid, do hereby certify that Eric J. Carlson, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 22nd day of July, 1997.

Anne O'Brien Troutman
Notary Public

(SEAL)

My Commission Expires: January 24, 2003

STATE OF Massachusetts)
) ss.
COUNTY OF Middlesex)

I, Dr. Anne Troutman, A Notary Public in and for the County and State aforesaid, do hereby certify that Daniel J. Ehntholdt, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 22nd day of July, 1997.

Anne O'Brien Troutman
Notary Public

(SEAL)

My Commission Expires: January 24, 2003

STATE OF MASSACHUSETTS)
) ss.
COUNTY OF MIDDLESEX)

I, ANNE O'BRIEN TROUTMAN, A Notary Public in and for the County and State aforesaid, do hereby certify that Irwin C. Winkler, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 18th day of July, 1997.

Anne O'Brien Troutman
Notary Public

(SEAL)

My Commission Expires: 1/24/2003

STATE OF Massachusetts)
) ss.
COUNTY OF Middlesex)

I, Anne O'Brien Troutman, A Notary Public in and for the County and State aforesaid, do hereby certify that Christopher J. Marmo, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 18th day of July, 1997.

Anne O'Brien Troutman
Notary Public

(SEAL)

My Commission Expires: 1/24/2003

STATE OF Massachusetts)
) ss.
COUNTY OF Middlesex)

I, Dr. Anne Troutman A Notary Public in and for the County and State aforesaid, do hereby certify that James R. Valentine, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this 22nd day of July , 1997.

Anne O'Brien Troutman
Notary Public

(SEAL)

My Commission Expires: January 24, 2003

PTO/SB/50 (06-03)
Approved for use through 01/31/2004. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REISSUE PATENT APPLICATION TRANSMITTAL

Address to:

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attorney Docket No.	109960.220 US5
First Named Inventor	Rollhaus et al.
Original Patent Number	6,343,063
Original Patent Issue Date (Month/Day/Year)	01/29/2002
Express Mail Label No.	EV225204946US

APPLICATION FOR REISSUE OF: (Check applicable box) ☑ Utility Patent ☐ Design Patent ☐ Plant Patent

APPLICATION ELEMENTS (37 CFR 1.173)

1. ☑ Fee Transmittal Form (PTO/SB/56) (Submit an original, and a duplicate for fee processing)
2. ☐ Applicant claims small entity status. See 37 CFR 1.27.
3. ☑ Specification and Claims in double column copy of patent format (amended, if appropriate)
4. ☐ Drawing(s) (proposed amendments, if appropriate)
5. ☑ Reissue Oath/Declaration (original or copy) (37 CFR 1.175) (PTO/SB/51 or 52)
6. ☐ Power of Attorney
7. ☑ Original U.S. Patent currently assigned? ☑ Yes ☐ No (If Yes, check applicable box(es))
   - ☑ Written Consent of all Assignees (PTO/SB/53)
   - ☑ 37 CFR 3.73(b) Statement (PTO/SB/96)
8. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table
9. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all of the following are necessary)
   a. ☐ Computer Readable Form (CFR)
   b. Specification Sequence Listing on:
      i ☐ CD-ROM (2 copies) or CD-R (2 copies); or
      ii ☐ paper
   c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

10. ☑ Statement of status and support for all changes to the claims. See 37 CFR 1.173(c).
11. ☐ Original Patent Grant
    - ☐ Ribboned Original Patent Grant
    - ☐ Statement of Loss (PTO/SB/55)
12. ☐ Foreign Priority Claim (35 U.S.C. 119) (if applicable)
13. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
14. ☐ English Translation of Reissue Oath/Declaration (if applicable)
15. ☑ Preliminary Amendment
16. ☑ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
17. Other: Application Data Sheet; Addendum to Declaration; Statement of Facts and Addendum; and Petition Pursuant to 37 CFR 1.47(a)

18. CORRESPONDENCE ADDRESS

☑ Customer Number: 23483 OR ☐ Correspondence address below

Name					
Address					
City					
Country		State		Zip Code	
	Telephone			Fax	

Name (Print/Type)	Peter M. Dichiara	Registration No. (Attorney/Agent)	38,005
Signature		Date	January 29, 2004

This collection of information is required by 37 CFR 1.173. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Reissue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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REISSUE APPLICATION FEE TRANSMITTAL FORM

Docket Number (Optional)
109960.220US5

Claims as Filed – Part 1

	(1) Claims in Patent	(2) Number Filed in Reissue Application	(3) Number Extra	Small Entity Rate	Small Entity Fee		Other than a Small Entity Rate	Other than a Small Entity Fee
Total Claims (37 CFR 1.16(j))	(A) 6	(B) 6	**** 0 =	x $ ____ =			x $ ____ =	
Independent claims (37 CFR 1.16(i))	(C) 2	(D) 2	* 0 =	x $ ____ =		or	x $ ____ =	
			Basic Fee (37 CFR 1.16(h))		$ ____			$ 770.00
			Total Filing Fee		$ ____		OR	$ 770.00

Claims as Amended – Part 2

	(1) Claims Remaining After Amendment		(2) Highest Number Previously Paid For	(3) Extra Claims Present	Small Entity Rate	Small Entity Fee		Other than a Small Entity Rate	Other than a Small Entity Fee
Total Claims (37 CFR 1.16(j))	*** 61	MINUS	** 20	* = 41	X $ ____ =			x $ 18 =	738.00
Independent Claims (37 CFR 1.16(i))	*** 22	MINUS	***** 2	= 20	x $ ____ =			x $ 86 =	1720.00
				Total Additional Fee		$		OR	$ 3228.00

* If the entry in (D) is less than the entry in (C), Write "0" in column 3.

** If the "Highest Number of Total Claims Previously Paid For" is less than 20, Write "20" in this space.

*** After any cancellation of claims.

**** If "A" is greater than 20, use (B – A); if "A" is 20 or less, use (B – 20).

***** "Highest Number of Independent Claims Previously Paid For" or Number of Independent Claims in Patent (C).

☑ Applicant claims small entity status. See 37 CFR 1.27.

☑ Please charge Deposit Account Number 08-0219 in the amount of $3228.00
A duplicate copy of this sheet is enclosed.

☑ The Director is hereby authorized to charge any additional fees under 37 CFR 1.16 or 1.17 which may be required, or credit any overpayment to Deposit Account Number 08-0219.
A duplicate copy of this sheet is enclosed.

☐ A check in the amount of $ _____ to cover the filing/additional fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

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January 29, 2004
Date

38,005
Registration Number, if applicable

Signature of Applicant, Attorney or Agent of Record

Peter M. Dichiara
Typed or printed name

PTO/SB/17 (10-03)
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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 130.00

Complete if Known	
Application Number	TBA
Filing Date	01/29/2004
First Named Inventor	Rollhaus, et al.
Examiner Name	TBA
Art Unit	TBA
Attorney Docket No.	109960.220 US5

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 08-0219

Deposit Account Name: Hale and Dorr LLP

The Director is authorized to: *(check all that apply)*

☑ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		x	=	
Independent Claims		- 3** =		x	=	
Multiple Dependent			0		=	0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
Other fee (specify)				37 CFR 1.47(a) Petition	130.00

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 130.00

SUBMITTED BY

Name (Print/Type)	Peter M. Dichiara	Registration No. (Attorney/Agent)	38,105	(Complete *(if applicable)*) Telephone	617-526-6466
Signature				Date	01/29/2004

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Application Data Sheet

Application Information

Application number::	TBA
Filing Date::	January 29, 2004
Application Type::	Reissue
Subject Matter::	Utility
Suggested Classification::	
Suggested Group Art::	
CD-ROM or CD-R?::	None
Title::	Machine-Readable Optical Disc with Reading-Inhibit Agent
Attorney Docket Number::	109960.220US5
Request for Early Publication?::	No
Request for Non-Publication?::	No
Suggested Drawing Figure::	
Total Drawing Sheets::	None
Small Entity?::	No
Petition Included?::	No
Licensed US Govt. Agency::	No
Secrecy Order in Parent Appl.?::	No

Applicant Information

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Initial 01/29/2004

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Country of Mailing Address::	US
Postal or Zip Code of Mailing Address::	94506-4755

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Country of Residence::	US
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City of Mailing Address::	Reading
State or Province of Mailing Address::	MA
Country of Mailing Address::	US
Postal or Zip Code of Mailing Address::	01867-3560

Correspondence Information

Correspondence Customer Number:: 23483

Representative Information

Representative Customer Number:: 23483

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This application	Reissue of	09/421,490	October 20, 1999
09/421,490	Division of	08/902,844	July 30, 1997
08/902,844	An application claiming benefit under 35 USC 119(e)	60/026,390	September 16, 1996

Foreign Priority Information

Country::	Application Number::	Filing Date::	Priority Claimed::

Assignee Information

Assignee Name:: FlexPlay Technologies, Inc.

PTO/SB/53 (05-03)
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REISSUE APPLICATION: CONSENT OF ASSIGNEE; STATEMENT OF NON-ASSIGNMENT	Docket Number (Optional) 109960.22 /98

This is part of the application for a reissue patent based on the original patent identified below.

Name of Patentee(s)	Philip Rothman, John Powell, Eric Carlson, Daniel Ehrnholt, Irwin Winkler, Christopher Manno, James Valentine	
Patent Number	6,343,063	Date Patent Issued Jan. 29, 2002
Title of Invention	Machine Readable Optical Disc with Reading-Inhibit Agent	

1. [X] Filed herein is a statement under 37 CFR 3.73(b). (Form PTO/SB/96)

2. [ ] Ownership of the patent is in the inventor(s), and no assignment of the patent is in effect.

One of boxes 1 or 2 above must be checked. If multiple assignees, complete this form for each assignee. If box 2 is checked, skip the next entry and go directly to "Name of Assignee".

The written consent of all assignees and inventors owning an undivided interest in the original patent is included in this application for reissue.

The assignee(s) owning an undivided interest in said original patent is/are Flexplay Technologies, Inc. and the assignee(s) consents to the accompanying application for reissue.

Name of assignee/inventor (if not assigned)	Flexplay Technologies, Inc.
Signature	Date 1-28-04

Typed or printed name and title of person signing for assignee (if assigned)

Alan P. Blaustein, Chief Executive Officer

PTO/SB/96 (09-03)
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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Philip Rothheus, John Powell, Eric Carlson, Daniel Ehntholt, Irwin Winkler, ~~Christopher Marmo, James Valentine~~

Application No./Patent No.: 09/421,490 / ~~6,343,062~~ Filed/Issue Date: Oct. 20, 1999/Jan. 29, 2002

Entitled: Machine-Readable Optical Disc with Reading-Inhibit Agent

Flexplay Technologies, Inc., a Corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☐ the assignee of the entire right, title, and interest; or

2. ☐ an assignee of less than the entire right, title and interest.
The extent (by percentage) of its ownership interest is _____ %
in the patent application/patent identified above by virtue of either:

A. [X] An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 013712, Frame 0660, or for which a copy thereof is attached.

OR

B. [ ] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____
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[ ] Additional documents in the chain of title are listed on a supplemental sheet.

[ ] Copies of assignments or other documents in the chain of title are attached.
[NOTE: A separate copy (i.e., the original assignment document or a true copy of the original document) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

1-28-04
Date

212-448-1300 X226
Telephone number

Alan P. Blaustein
Typed or printed name

Signature

Chief Executive Officer
Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Attorney Docket No. 109960.220 US5

Reissue of U.S. Patent No. 6,343,063
Copy of Specification Pursuant to 37 C.F.R. § 1.173(a)(1)


US006343063B1

(12) **United States Patent**
Rollhaus et al.

(10) **Patent No.: US 6,343,063 B1**
(45) **Date of Patent: *Jan. 29, 2002**

(54) **MACHINE-READABLE OPTICAL DISC WITH READING-INHIBIT AGENT**

(75) Inventors: **Philip E. Rollhaus**, Chicago, IL (US); **John R. Powell**, Arlington, MA (US); **Eric J. Carlson**, Sudbury, MA (US); **Daniel J. Ehntholt**, Hudson, MA (US); **Irwin C. Winkler**, Arlington, MA (US); **Christopher J. Marmo**, Nashua, NH (US); **James R. Valentine**, Reading, MA (US)

(73) Assignee: **SpectraDisc Corp.**, Providence, RI (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/421,490**

(22) Filed: **Oct. 20, 1999**

Related U.S. Application Data

(62) Division of application No. 08/902,844, filed on Jul. 30, 1997, now Pat. No. 6,011,772.
(60) Provisional application No. 60/026,390, filed on Sep. 16, 1996.

(51) **Int. Cl.**[7] **G11B 3/70**

(52) **U.S. Cl.** **369/286**
(58) **Field of Search** 369/286; 428/64.4

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,011,772 A * 1/2000 Rollhaus et al. 369/286

FOREIGN PATENT DOCUMENTS

EP	0806 768	11/1997	..... G11B/7/24
JP	05101471	4/1993	..... G11B/11/10
JP	08147856	6/1996	..... G11B/19/02

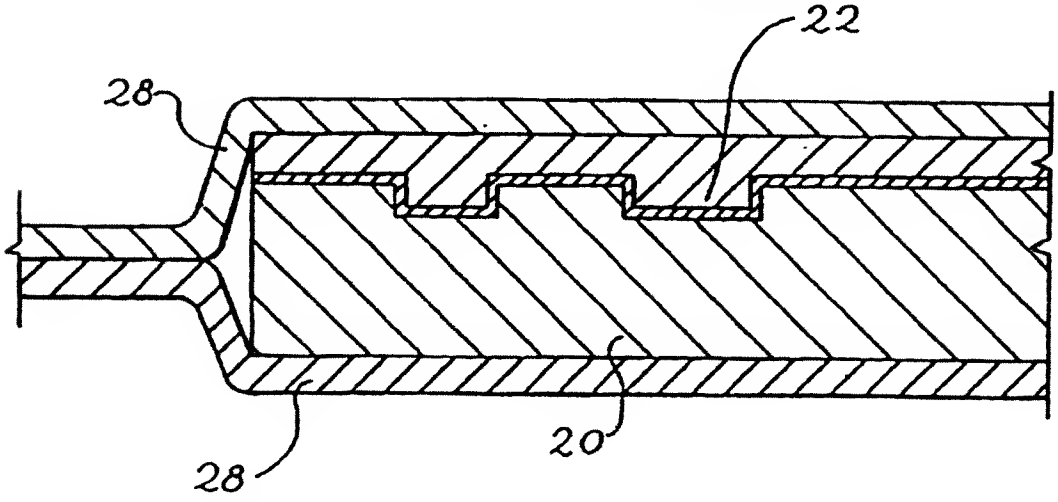
* cited by examiner

Primary Examiner—David Davis
(74) *Attorney, Agent, or Firm*—Ohlandt, Greeley, Ruggiero & Perle

(57) **ABSTRACT**

An optical disc having machine-readable, information-encoding features is provided with a barrier layer secured to the disc. This barrier layer is configured to prevent machine-reading of the features. A reading-inhibit agent, included in the disc and activated by removal of the barrier layer, is operative, once activated, to alter the disc to inhibit reading of the disc, after some period of time. Alternately, the barrier layer can be eliminated, and the reading-inhibit agent can be activated by initial reading of the disc, as for example by exposure to optical radiation associated with reading of the disc, or rotation of the disc.

6 Claims, 5 Drawing Sheets



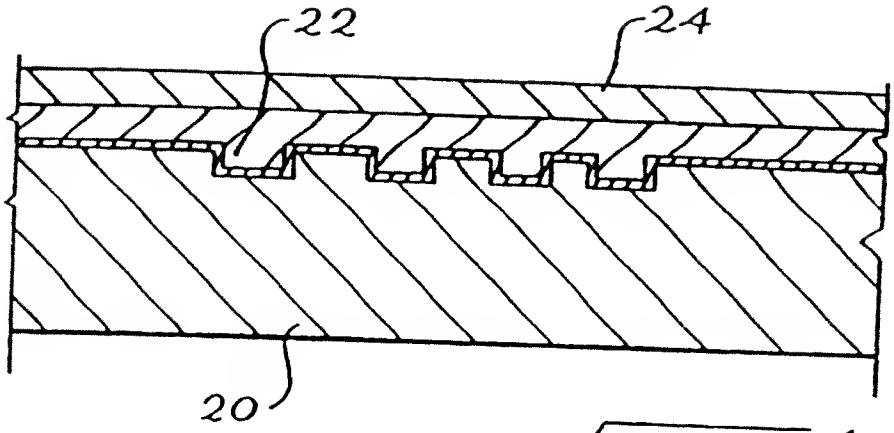


Fig. 1

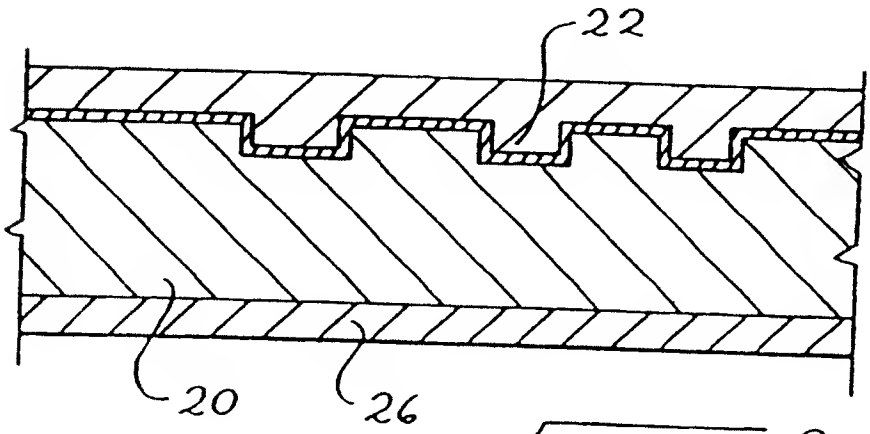


Fig. 2

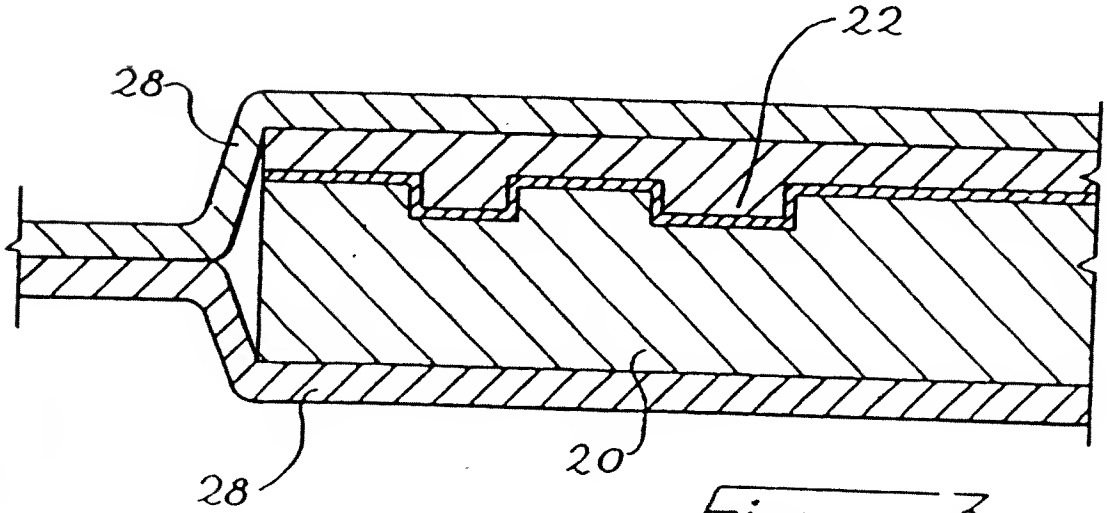


Fig. 3

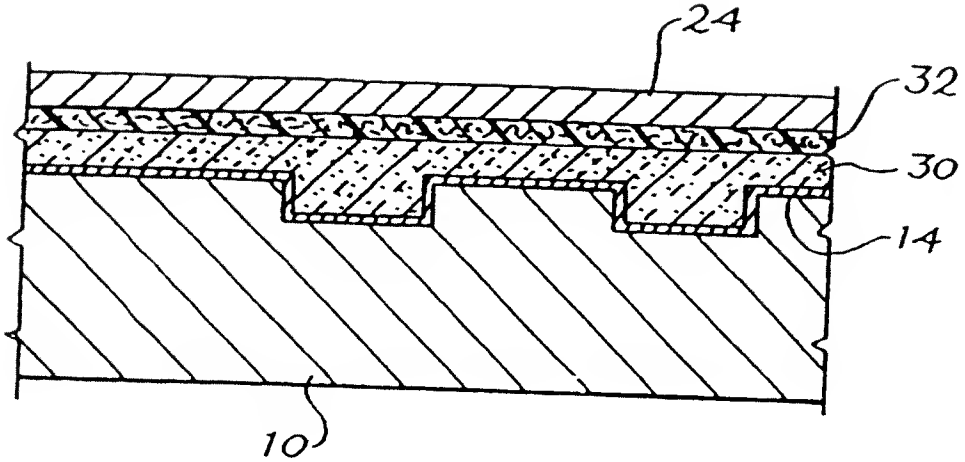


Fig. 4

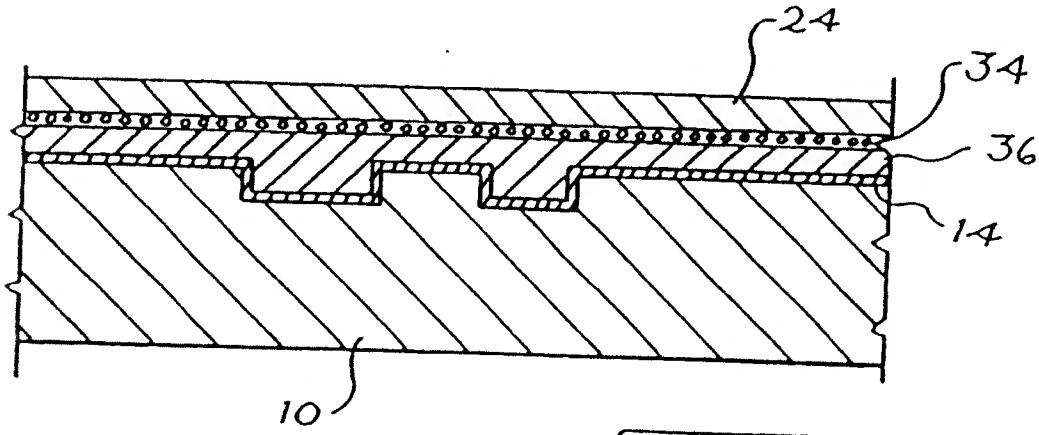


Fig. 5

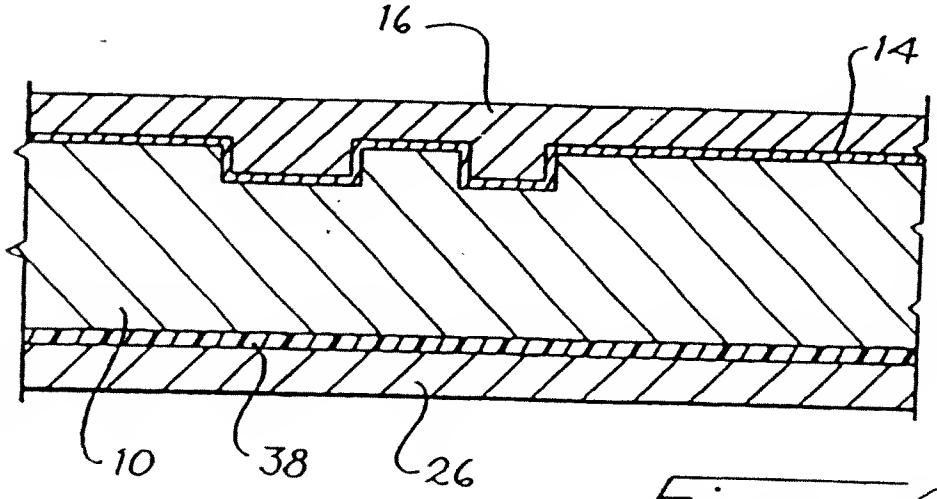


Fig. 6

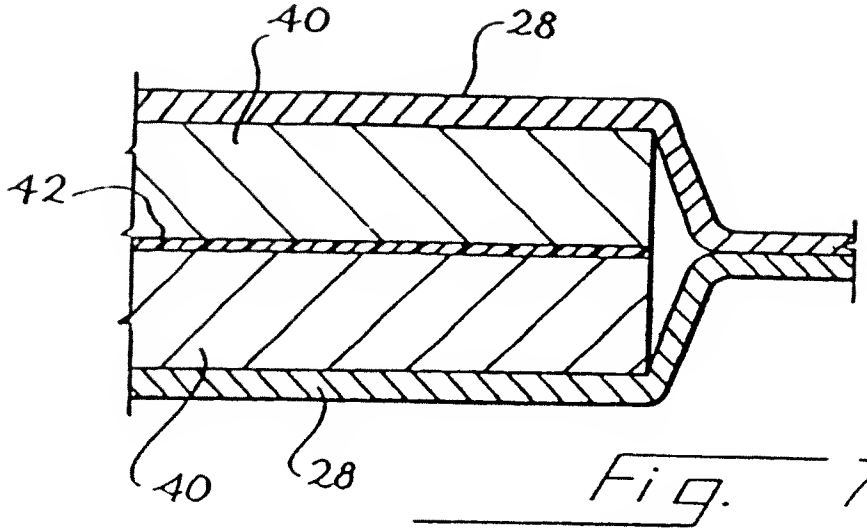


Fig. 7

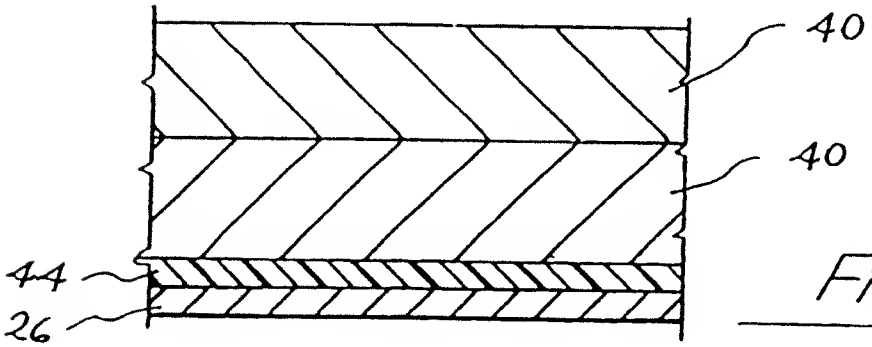


Fig. 8

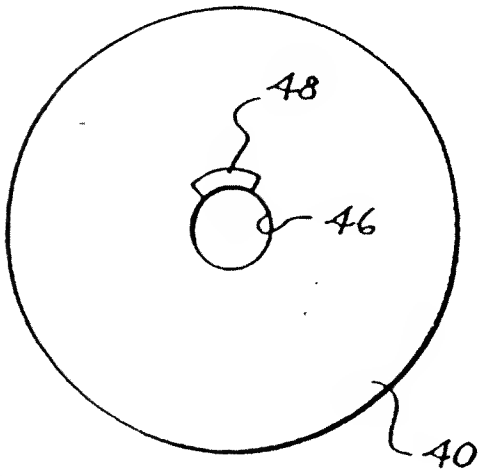


Fig. 9

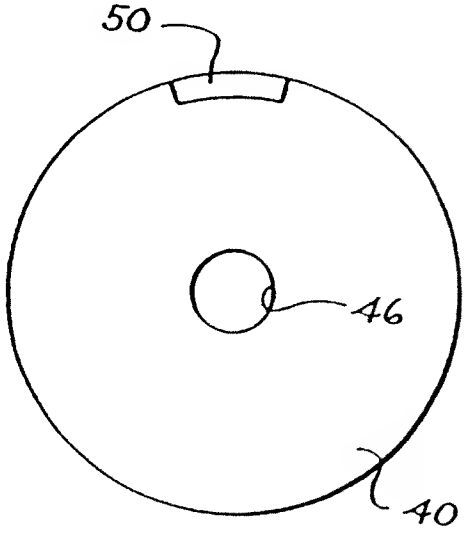


Fig. 10

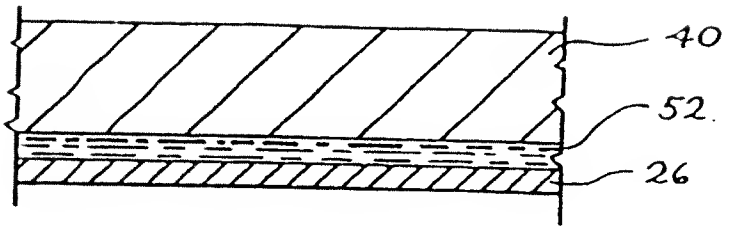


Fig. 11

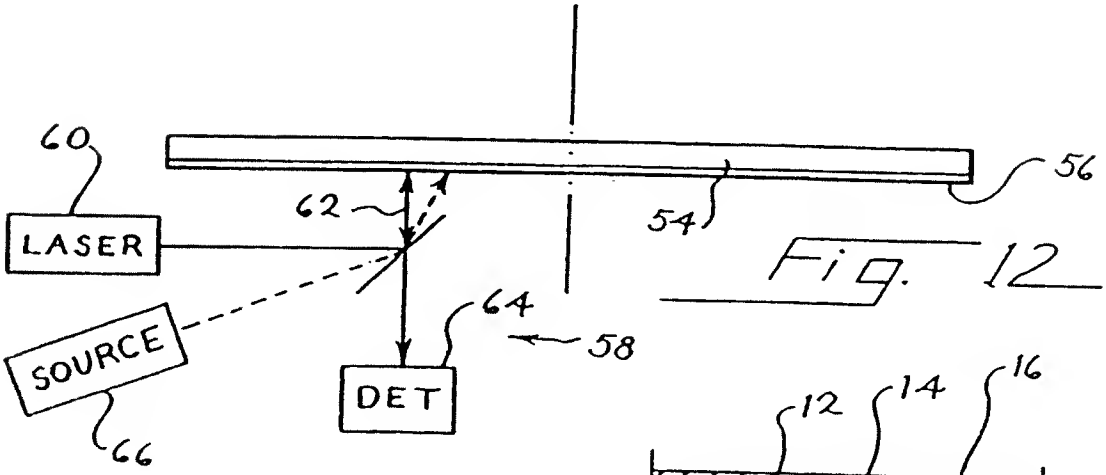


Fig. 12

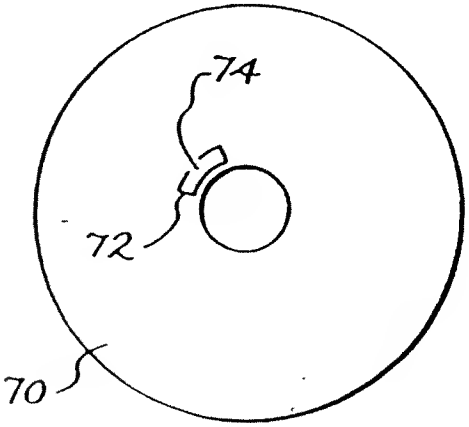


Fig. 13

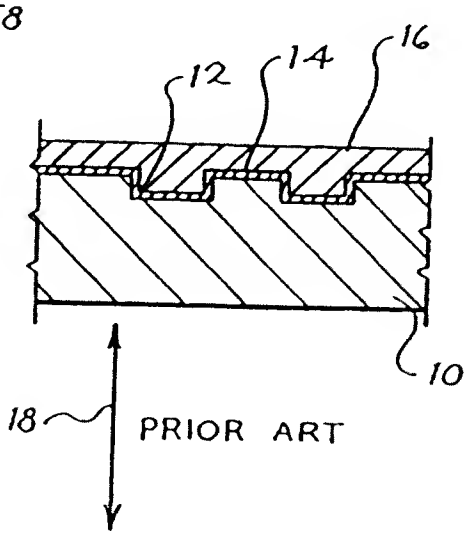


Fig. 16

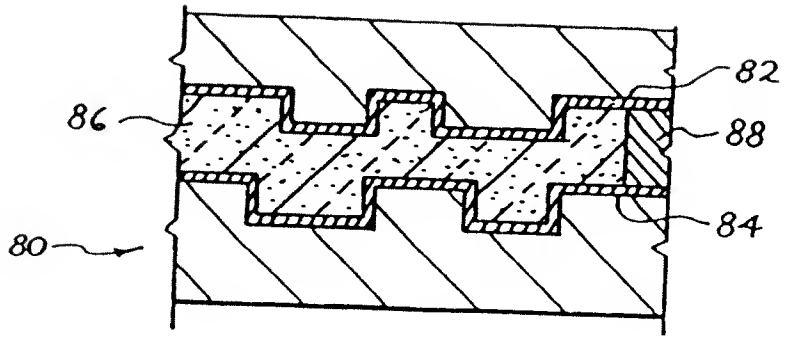


Fig. 14

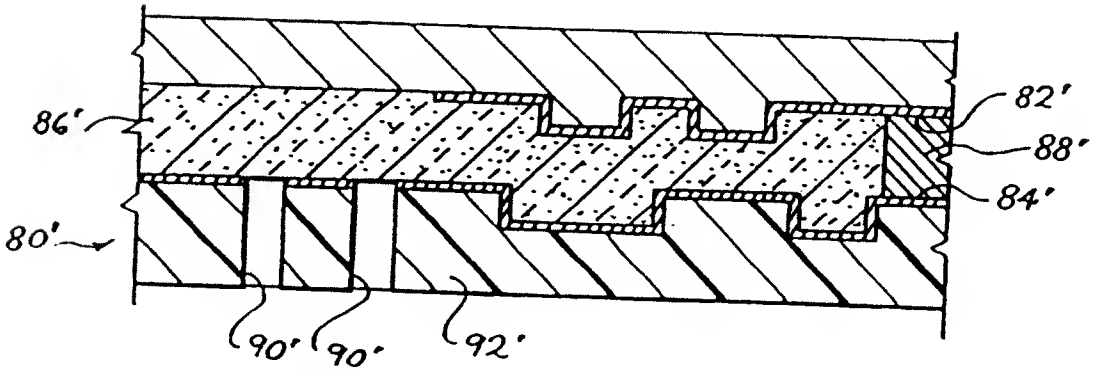


Fig. 15

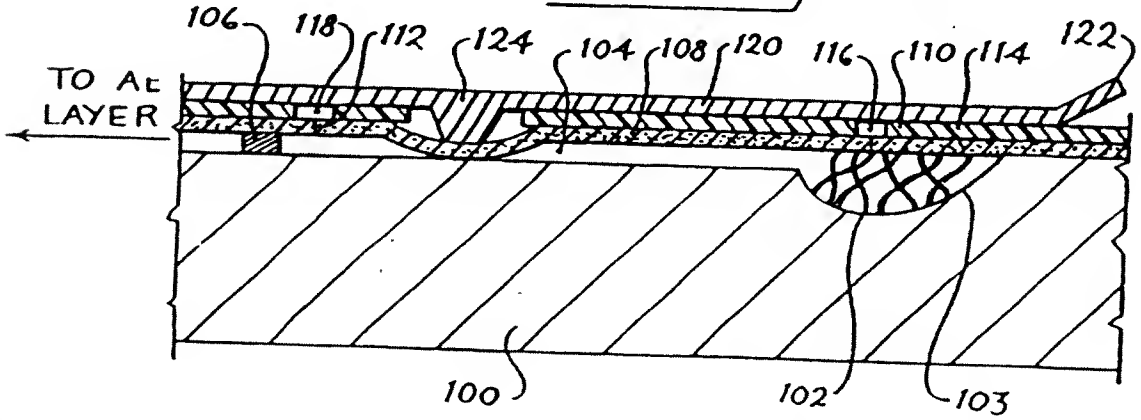


Fig. 17

MACHINE-READABLE OPTICAL DISC WITH READING-INHIBIT AGENT

This is a division of application Ser. No. 08/902,844, filed Jul. 30, 1997, now U.S. Pat. No. 6,011,772 which claims benefit to Provisional No. 60/026,390 filed Sep. 16, 1996.

BACKGROUND OF THE INVENTION

This invention relates to machine-readable optical discs of all types, including for example digital discs such as compact discs (CD's), digital video discs (DVD's), CDROM's, and the like.

Conventional optical discs have reached widespread acceptance as a low-cost, reliable storage medium for digital information including music, video, and data. One of the traditional advantages of optical discs as their long life.

However, in some applications, the long life of the conventional optical disc may represent a disadvantage. For example, if music, movies or software is to be made available for a limited time period, as in the rental, period for entertainment, the original optical disc must be returned at the end of the rental period.

A need presently exists for an improved machine-readable optical disc that eliminates the need for the return of an optical disc at the end of a rental period.

SUMMARY OF THE INVENTION

According to a first aspect of this invention, an optical disc comprising machine-readable, information-encoding features is provided with a barrier layer releasably coupled to the disc. This barrier layer is configured to prevent machine-reading of the disc. A reading-inhibit agent is included in the disc, and is activated by removal of the barrier layer. This reading-inhibit agent is operative, after it is activated, to alter the disc to inhibit reading of the disc. Both the barrier layer and the reading-inhibit agent can take many forms, as discussed by way of example below.

According to another aspect of this invention, an optical disc comprising machine-readable, information-encoding features is provided with a reading-inhibit agent that is activated by machine-reading the disc. This reading-inhibit agent is operative, after it is activated, to alter the disc to inhibit reading of the disc. In alternate embodiments, the reading-inhibit agent may be activated by optical radiation incident on the disc during machine-reading of the disc, or by rotation of the disc during machine-reading of the disc.

According to a third aspect of this invention, a method is provided for inhibiting reading of an optical disc. According to this method, an optical disc is provided comprising machine-readable, information-encoding features, and a reading-inhibit agent. The reading-inhibit agent is activated by optical radiation, and is operative, once activated, to alter the disc to inhibit reading. A reading device is provided to read the disc, and this reading device comprises a source of optical radiation. According to the method of this invention, the disc is read with the reading device, and the inhibit agent is concurrently activated with optical radiation from the source. The source of optical radiation that activates the reading-inhibit agent can either be the source of optical radiation that forms the reading beam, or a second source, separate from the reading beam source.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. **1** through **3** are partial cross-sectional views of three barrier layers suitable for use in embodiments of this invention.

FIGS. **4**, **5**, **6**, **7** and **8** are partial cross-sectional views of optical discs that incorporate first, second, third, fourth, and fifth preferred embodiments of this invention, respectively.

FIGS. **9** and **10** are plan views of optical discs that incorporate sixth and seventh preferred embodiments of this invention, respectively.

FIGS. **11** and **12** are partial cross-sectional views of optical discs that incorporate eighth and ninth preferred embodiments of this invention, respectively.

FIG. **13** is a plan view of an optical disc that incorporates a tenth preferred embodiment of this invention.

FIGS. **14** and **15** are partial cross-sectional views of optical discs that incorporate embodiments of the invention employing galvanic cells.

FIG. **16** is a partial cross-sectional view of a prior art compact disc.

FIG. **17** is a partial cross-sectional view of a disc containing a reservoir.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

The present invention can be implemented in many different ways, and the following discussion will describe selected embodiments of the invention. These embodiments are intended as examples only, and not as an exhaustive list of all forms that the invention can take. Generally speaking, the embodiments discussed below can be classified into two groups. The first group uses a barrier layer to prevent premature activation of the reading-inhibit agent, while the second group does not use such a barrier layer.

In general, this invention can be used with the widest possible variety of optical discs comprising machine-readable, information-encoding features. FIG. **16** shows a highly schematic cross section of an optical disc such as a prior art compact disc. FIG. **16**, like all of the other figures, is not drawn to scale; selected features have been exaggerated in size for clarity of illustration. The disc of FIG. **16** includes a substrate **10** which is formed with an array of information-encoding features such as pits **12**. The surface defining the information-encoding features **12** is covered with a reflective layer **14**, which may be, for example, formed of aluminum. The reflective layer **14** is in turn covered with a protective layer **16** which protects the reflective layer **14** from oxidation and physical damage. A reading beam aligned with the arrow **18** is incident on the surface of the substrate **10** opposite the information-encoding features **12**. This reading beam passes through the substrate **10**, is reflected by the reflective layer **14**, and then passes out through the substrate **10** for detection. Features **10**–**18** described above are completely conventional. As used herein, the term "information-encoding features" is intended broadly to encompass the widest possible range of such features, regardless of the particular encoding mechanism or reading beam interaction mechanism that is used.

Embodiments that Utilize a Barrier Layer

The following embodiments of the invention utilize a barrier layer to prevent activation of the reading-inhibit agent until the barrier layer has been removed. FIGS. **1**–**3** show three different types of barrier layers that can be used. In FIGS. **1**–**3**, the reference symbol **20** is used to depict the optical disc, which includes information-encoding features **22** on the upper surface of the disc, in the orientation shown in the figures. In the embodiment of FIG. **1**, a barrier layer **24** is releasably secured (as for example with a suitable adhesive) adjacent the surface of the optical disc **20** that carries the information-encoding features **22**.

ment of FIG. 2, the barrier layer **26** is releasably secured to the surface of the disc **20** opposite the surface that carries the information-encoding features **22**. In the embodiment of FIG. 3, the barrier layer **28** is formed as a closed package which completely seals the optical disc **20** from contact with ambient oxygen and moisture. In this case, there is no need for the barrier layer **28** to be adhesively secured to the disc **20**. As used herein, a barrier layer which is releasably coupled to an optical disc may be coupled adhesively as shown in FIGS. **1** and **2**, coupled by enveloping the disc as shown in FIG. **3**, or coupled in any other way that reliably associates the barrier layer and the disc prior to removal of the barrier layer.

As pointed out below, the reading-inhibit agent can take many forms and can be applied at many different places on the optical disc **20**. Depending upon the reading-inhibit agent used and its location, the position and physical and chemical characteristics of the barrier layer **24**, **26**, **28** can be selected as appropriate.

It is not essential in all applications that the barrier layer cover an entire surface of the disc **20**. If the reading-inhibit agent is localized to a particular portion of the disc, the barrier layer may cover only an area adjacent to and aligned with that portion. Preferably, the barrier layer should prevent machine-reading of the optical disc until it is removed.

Reading-Inhibit Agents that Disrupt Readability of the Optical Disc by Controlled Degradation of the Reflective Layer

A first type of reading-inhibit agent disrupts the reflectivity of the reflective layer in optically read discs to such an extent that the encoded data is rendered unusable. By disrupting the readability of the disc at a known time after the initial use of the disc, or after removal of the barrier layer, the practical usage lifetime of the disc can be limited and controlled.

The reflective layer **14** that is conventionally used in optical discs is typically formed as a thin film of metallic aluminum. This aluminum film can be corroded by exposure to an oxidizing environment to such an extent that the film no longer has sufficient reflectivity to support optical reading of the disc. For example, water and oxygen from the atmosphere can form a suitable oxidizing environment for such an aluminum film. The rate and timing of the corrosion of the aluminum film can be controlled by several approaches, including control of the concentration of an oxidizing species, control of the solution pH, introduction of dissimilar metal couples, and introduction of chemical species to control solubility of aluminum. For example, in the case where atmospheric oxygen is the oxidant, a porous polymer film may be placed over the aluminum film to provide known permeability characteristics for moisture and oxygen from the atmosphere as it migrates to the aluminum film. In this case, corrosion can be substantially prevented by a barrier layer such as the barrier layer **24** of FIG. **1** or the barrier layer **28** of FIG. **3** until the barrier layer is removed prior to initial reading of the optical disc.

A key feature of optically read discs is the use of a reflective layer **14** as described above to reflect light from the interrogating light source, generally a laser operating with a principal wavelength in the visible portion of the spectrum, to the detector. The reflective layer **14** is most generally composed of metallic aluminum which is deposited on to the information-encoding features by sputtering a very thin film. This thin film is approximately 55 nanometers in thickness in conventional compact discs.

Conventional reflective layers are subject to corrosion reactions involving oxidation of the metallic aluminum and subsequent formation of aluminum compounds such as hydroxy salts which are not reflective:

$$Al \rightarrow Al^{+3} + 3e^{-} \text{ (oxidation)}.$$

$$Al^{+3} + 3OH^{-} \rightarrow Al(OH)_3 \text{ (compound formation)}.$$

The oxidation of the aluminum metal is balanced by a reduction reaction such as the following:

$$O_2 + 2H_2O + 2e^{-} \rightarrow 4OH^{-} \text{ (in neutral or alkaline solutions)}.$$

$$2H^{+} + 2e^{-} \rightarrow H_2 \text{ (in acidic solutions)}.$$

The corrosion reaction typically involves an electrolyte film on the surface of the aluminum to form an ionic path between the oxidation and reduction sites on the aluminum surface. In the example of atmospheric oxygen, a film or layer of water on the surface is one suitable electrolyte. The rate of corrosion will be influenced by the availability of the oxidizing species (e.g. oxygen or hydronium, H+), the addition of soluble salts to influence the conductivity of the electrolyte, the addition of chlorides to alter the stability of the normally protective aluminum oxide film, pH buffers to influence the stability of the normally protective aluminum oxide layer or to influence the reduction reaction, or the addition of complexing agents to dissolve protective aluminum oxides or to keep aluminum corrosion products in solution. Such salts and other complexing agents may be deliberately added in a layer of material placed next to the aluminum layer. Addition of a hygroscopic material and salts to this layer can also aid in collecting atmospheric moisture for subsequent release as liquid water solution at the corrosion reaction site. The hygroscopic material or salts effectively lower the dew point of the aluminum surface, the relative humidity at which a liquid film forms on the metal surface.

Cupric and ferric chloride are specific examples of oxidizers that may be incorporated into an electrolyte layer next to the aluminum layer to accelerate corrosion of the aluminum. These materials offer several advantages. If the metal cation is reduced to the metallic state in the oxidation reaction, the metal (e.g. copper or iron) deposited on the aluminum surface forms local cathodes that can accelerate corrosion of aluminum in adjacent areas. If the metal cation is not completely reduced to the metallic state, the cuprous or ferrous species may react with oxygen to restore the oxidizing power of the solution.

FIG. **4** shows one preferred embodiment of this invention which includes a substrate **10** and a reflective layer **14** as described above. In this case, an electrolyte layer **30** is applied adjacent to the reflective layer **14**. The electrolyte layer **30** contains substances which aid the corrosion reactions, such as hygroscopic salts, pH buffers, complexing agents for aluminum, and the like. The electrolyte layer **30** is in turn covered with an outer layer **32** of a material which is permeable to environmental moisture and oxygen. The permeable layer **32** is in turn initially covered by a barrier layer **24** as described above. The barrier layer **24** prevents oxygen and water from reaching the permeable layer **32** during storage and transport. When a user wishes to read information from the optical disc of FIG. **4**, the user removes the barrier layer **24**. Oxygen and water vapor from the atmosphere then diffuse through the permeable layer **32** at a controlled rate. The water vapor can be, for example, collected by hygroscopic materials in the electrolyte layer **30**, and subsequently made available to aid in the aluminum corrosion reactions discussed above.

Based on typical corrosion rates for aluminum, and an assumed reflective layer thickness of 55 nanometers, the reflective layer may be degraded adequately to prevent machine-reading of the optical disc in, for example, 1 to 100

hours after removal of the barrier layer **24**, depending upon the availability of moisture, and the parameters of the electrolyte layer **30** and the permeable layer **32**.

Table I illustrates the relationship between the corrosion rate i_{corr} the rate of aluminum film removal L, and the time $t_{55\ nm}$ to corrode 55 nanometers of aluminum. In Table I, L is estimated using Farady's law.

TABLE I

i_{corr} (uA/cm2)	L (nm/hr)	$t_{55\ nm}$ (Hours)
0.1	0.1	442.3
1	1.2	44.2
10	12.4	4.4
100	124.4	0.4

If desired, metallic films or pieces of a more noble metal (for example a metal such as copper or silver, or carbon) can be placed in electrical contact with an aluminum reflecting layer **14** and with an electrolyte layer **30** containing oxygen as described above or other suitable oxidizing species. In this case the galvanic couple due to the presence of the more noble element will result in more rapid and directed corrosion of the aluminum reflecting layer **14** than would otherwise occur in the absence of that second, more noble element.

Additionally, if desired the reflective layer **14** can be sputter-coated in such a manner that the reflective layer **14** itself includes more noble elements such as copper in the reflective film itself. The aluminum alloy film will have a higher corrosion rate than a purer aluminum film due to the formation of localized cathodes at the sites of the more noble elements.

FIG. **14** is a schematic view of an optical disc **80** which includes an aluminum layer **82** and a copper layer **84**, separated by an electrolyte layer **86**. The metal layers **82**, **84** may be configured for example as a conventional two-sided DVD to encode information, and the copper layer **84** provides sufficient reflectivity for conventional reading. The metal layers **82**, **84** are connected electrically in any convenient manner, for example by a metal foil **88** or a conductive adhesive (e.g. an epoxy filled with carbon, silver or copper particles). The three layers **82**, **84**, **86** and the foil **88** form a galvanic cell, in which the aluminum layer **82** is the anode that corrodes relative to the more noble metal. The electrolyte layer **86** provides ionic continuity between the layers **82**, **84**, while the foil **88** provides electronic contact.

FIG. **15** shows an optical disc **80'** that is similar to the disc **80** of FIG. **14**. Primed reference numerals are used in FIG. **15** for elements corresponding to elements **82–88** of FIG. **14**. In FIG. **15** the area of the copper layer **84'** is greater than the area of the aluminum layer **82'** to increase the aluminum corrosion rate. Also, openings **90'** are provided through the copper layer **84'** and the adjacent polycarbonate layer **92'** to further increase the aluminum corrosion rate. Preferably, the openings **90'** are located in an area of the disc **80'** not containing stored information, such as the central portion of the disc **80'**.

As shown in FIG. **5**, it is not essential in all embodiments that atmospheric oxygen and water be used as the oxidizing species. For example, as shown in FIG. **5**, microcapsules **34** can be provided between the barrier layer **24** and the permeable layer **36**. These microcapsules can contain any suitable oxidizing species and electrolyte. In this example removal of the barrier layer **24** ruptures at least some of the microcapsules **34**, thereby releasing electrolyte and oxidant into the permeable layer **36**. The electrolyte and oxidant migrate through the permeable layer **36** and come into contact with the reflective layer **14** in order to initiate a controlled corrosion process. This embodiment is less sensitive to the availability of atmospheric moisture than the embodiment of FIG. **4**.

From the foregoing it should be apparent that the reading-inhibit agent can take many forms, including electrolytes, oxidizing species, various elements more noble than the reflective metal, and permeable films that control the rate at which atmospheric oxygen and water reach the reflective layer. In various embodiments the inhibit agent can take the form of films, or it can be contained in various ways, including by use of microcapsules.

The following paragraphs detail test results related to the use of hygroscopic salts, placed on an aluminum surface, to pick up water from the atmosphere and form an electrolyte film. The hygroscopic salts may be sufficiently corrosive by themselves, or alternately they may be used in conjunction with other salts and complexing agents to provide the desired aluminum removal rate. The salts are preferably applied in the anhydrous form to the surface, and are then protected by a barrier to exclude moisture from the salts. Activation of the corrosion process occurs when the barrier is removed.

The corrosion approach is based on the principle that a dry salt will come to equilibrium with its environment. In the process of coming to equilibrium, the salt can either dissolve, to form an electrolyte solution, or become drier. Table Ia lists the humidity above saturated solutions of several salts in a closed environment. If the salt is placed in air with higher humidity than the table value, it will pick up water. If the humidity is lower than the table value, the solution will lose water. The salts used in this application include magnesium chloride and quaternary ammonium amine chlorides.

TABLE Ia

Humidity Above Saturated Solutions of Various Salts		
Solid Phase	t° C.	% Humidity
$H_3PO_4.1/2H_2O$	24	9
$LiCl.H_2O$	20	15
$KC_2H_3O_2$	20	20
$Pb(NO_3)_2$	20	98

Lithium chloride and potassium acetate were tested as the candidate salts. To these, either potassium hydroide (KOH) or trisodium phosphate (TSP) were added to increase the aggressiveness of the electrolyte. Placement of dilute solutions of either KOH or TSP on the disc surface quickly dissolved the aluminum film. With these aggressive salts, complexing agents, such as citrate, were not needed to remove any passive films on the aluminum.

Further, tests were conducted by placing the salts onto the unprotected aluminum layer of CDs. Some of the CDs were then left exposed to room air while others were placed in desiccators with relative humidities of 20% and 8.5%. The relative humidities in the desiccators were controlled by solutions of sulfuric acid; the specific gravity of the sulfuric acid solution was selected to provide the desired relative humidity. During these experiments, ambient relative humidities ranged from 20 to 30 percent. Four salts were used: potassium acetate (KAc), lithium chloride (LiCl), KOH, and TSP and were mixed as shown in Table 1b. The concentration of salt in the solution on the disc surface depended on the amount of water that was absorbed

TABLE 1b

	Salts Mixtures	
SALT	TSP	KOH
KAc (4 grams)	1.31 g or .13 g	0.58 g or 0.06 g
LiCl (4 grams)	1.31 g or 0.13 g	0.58 g or 0.06 g

When LiCl was placed on the disc's aluminum surface under ambient conditions, droplets of water formed on the salt mass within 30 minutes; with KAc it took 3 hours. The water droplets formed with LiCl were clearly visible to the unaided eye; the droplets formed with KAc could be observed with the use of a magnifying glass. After these samples were allowed to stand overnight, the aluminum with LiCl showed partial corrosion, while the aluminum with KAc was intact.

The tests also showed that KOH alone was highly hygroscopic and corroded the discs under all conditions. Within the limitations of existing equipment, under the driest conditions KOH corroded the aluminum surface in all tests. The water retained in the KOH was sufficient to corrode the aluminum surface, even when a glove bag was used to apply the KOH, and a dry desiccator was used to store the sample.

At 20% RH, the LiCl (alone and in mixtures) continued to form water droplets on the disc surface and to attack the aluminum. In the 8.5% RH desiccator, visible water droplets did not form, in agreement with the table values.

TSP did not attack the aluminum when placed on the surface by itself, even under ambient conditions. TSP was not sufficiently hygroscopic to form an aggressive electrolyte film. However, when used in conjunction with LiCl at 20% RH, enough water was picked up to form an aggressive solution, which attacked the aluminum. A mixture of LiCl and TSP did not attack the aluminum in the 8.5% RH desiccator (no breakthrough after four days).

These tests demonstrated that the corrosion process can be activated by ambient moisture down to at least 20% relative humidity, and probably down to 15% based on published values for LiCl. Other salts or drier KOH may allow one to go to even lower humidities.

Reading-Inhibit Agents that Operate by Absorbing Optical Radiation of the Reading Beam

The digital video disk (DVD) format uses a 650 nm laser to read information from the disk. If this reading beam is absorbed to a significant degree, the return signal from the disk is attenuated. By including a light-absorbing material in the disk, it is possible to attenuate the reading signal enough to prevent the disk from being read. Preferably, the light-absorbing material is strongly absorbing at the wavelength of the reading beam. Many compounds absorb at 650 nm, and they usually appear blue or green in color.

In order to allow the disc to be read on its first use, the light-absorbing material is initially nonabsorbent at the wavelength of the reading beam. Over time, for example four to 24 hours, this light-absorbing material becomes absorbing at the wavelength of the reading beam in response to some environmental stimulus. One approach is to use a compound for the light-absorbing material that is initially colorless, but which oxidizes to a new compound which is colored upon exposure to oxygen in the atmosphere, or some other oxidant. Many compounds are known which exhibit this behavior. Four compounds which may be particularly appropriate are given in Table 2 (in their oxidized form).

TABLE 2

Compound	Color Index Number
Indigo Carmine	73015
Methylene Blue	52015
Thionin	52000
Gallocyanine	51030

The colorless precursor to the light-absorbing material is incorporated in the optical disc somewhere along the path taken by the laser light of the reading beam. For instance, the colorless precursor can be compounded within the material (typically polycarbonate) that makes up the substrate **10**, or the colorless precursor can be included in a coating on a surface of the substrate **10**.

Preferably, the rate at which atmospheric oxygen reaches the colorless precursor is controlled in order to render the optical disc unreadable at a selected time after the barrier layer is removed. The rate at which oxygen reaches the colorless precursor should be selected such that the optical disc can be read at least once before sufficient color is generated to make the optical disc unreadable. The rate at which oxygen reaches the colorless precursor should be high enough to ensure that the optical disc becomes unreadable within the desired time period (for example four to 24 hours). Various methods can be used to control the rate at which oxygen reaches the colorless precursor. If the light-absorbing compound is contained within the body of the substrate **10**, the amount of the absorbing compound can be adjusted as appropriate for the application; higher loadings will result in quicker obscuration. The rate at which the absorbing compound becomes absorbing to the reading beam can be lowered by lowering the concentration of the absorbing compound in the substrate, or by applying an outer coating to the substrate which acts as a semipermeable oxygen barrier.

Alternately, the absorbing compound can be placed as shown in FIG. **6** in a layer **38** on a surface of the substrate **10**. The rate of the oxidation reaction can be controlled in this case by choosing a matrix such as a suitable polymer for the absorbing compound layer having the appropriate barrier properties. Alternately, an additional coating layer can be employed over the absorbing layer, and this additional coating can act as a semipermeable oxygen barrier which allows oxygen to reach the absorbing layer at the desired rate.

As shown in FIG. **6**, a barrier layer **26** is used to protect the absorbing layer **38** from atmospheric oxygen during storage and transport. The barrier layer can also take the form of an air-tight package, as shown in FIG. **3**.

Reading-Inhibit Agents that Operate by Altering Physical Dimensions of the Optical Disc

Certain embodiments of the invention use a reading-inhibit agent which alters its physical dimension when activated. A superabsorbing polymer is one such material, for example a polymer or copolymer containing a carboxylic or alcohol moiety. For example, a water-absorbent resin may be formed from a cross-linked polymer or a copolymer of acrylic acid, methacrylic acid, methylacrylate-vinylacetate, starch-ethyl acrylate, starch-acrylonitrile, carboxymethyl cellulose, ethylene oxide, vinyl alcohol, acrylamide, and the like.

Such materials can be used in several ways to make an optical disc unreadable, for example as the material absorbs ambient moisture. The absorption of such moisture creates a volume change in the material, which can be used to cause

a combination of any of the following effects to prevent reading: delamination, a change in the refractive index, or a change in spinning characteristics.

For example, as shown in FIG. 7, a superabsorber layer **42** can be placed between two digital video disc substrates **40**. The entire digital video disc is then protected with an encapsulating barrier layer **28** similar to that shown above in FIG. 3. When the barrier layer **28** is removed, ambient moisture is allowed gradually to reach the superabsorber layer **42**. As the superabsorber layer absorbs moisture, it will increase in volume, thereby causing the digital video disc to delaminate and preventing further reading of the disc.

In the example of FIG. **8**, a superabsorber layer **44** is placed on the readable surface of a digital video disk **40**, and this superabsorber layer is protected by a barrier layer **26**. When the barrier layer **26** is removed, the superabsorber layer **44** will absorb ambient moisture and increase in volume. This volume increase causes a significant change in the refractive index of the material, which renders the digital video disc unreadable.

As shown in FIG. **9**, a superabsorber layer **48** may be placed either partially or completely around a spindle hole **46** of the digital video disk **40**. This superabsorber layer **48** is protected by a barrier layer (not shown in FIG. **9**) prior to use. When the barrier layer is removed, ambient moisture will gradually cause the superabsorber layer **48** to expand. If the superabsorber layer **48** is placed as shown in FIG. **9**, this can cause the spindle hole **46** to assume an eccentric position, thereby rendering the optical disc unreadable. Alternately, if the superabsorber layer **48** extends substantially around the spindle hole **46**, the superabsorber layer **48** may expand to the point where the spindle bole **46** is too small to fit on the spindle of the reading device.

FIG. **10** shows another embodiment in which the superabsorber layer **50** is mounted near the outer rim of the digital video disk **40**. As before, the superabsorber layer **50** is initially protected by a barrier layer (not shown in FIG. **10**). Once the barrier layer is removed, the superabsorber layer **50** absorbs atmospheric moisture, thereby rendering the disc sufficiently out of balance to prevent reliable reading.

In all of the examples discussed above, the rate at which the super-absorber layer absorbs moisture can be modified by placing a semipermeable barrier over the exposed surface of the superabsorber layer. This barrier can regulate the diffusion of ambient moisture to the superabsorber layer, which in this way controls the time period during which the optical disc is readable after the barrier layer has been removed.

Reading-Inhibit Agents that Operate by Scattering the Reading Beam

As discussed above, a laser beam is typically used as a reading beam for optical discs. If the reading beam is scattered or otherwise attenuated to a significant degree, the disc cannot be accurately read. For example, as shown in FIG. **11**, a digital video disc **40** can be provided with a layer **52** that includes a material such as a solvent that will alter the optical characteristics of the adjacent portion of the digital video disc **40**. For example, a polycarbonate exposed to solvent is known to craze, i.e. to form a diffuse, opaque film or layer, which scatters the reading beam. Suitable solvents include organic liquids or vapors such as acetone, xylene and the like. Depending upon the concentration of the solvent and the exposure time, various rates of loss of transparency can be obtained. Other coatings in addition to polycarbonates can exhibit the same effective behavior by slight dissolution in an organic solvent followed by deposition on the surface of the disc as the solvent evaporates or is lost. The redeposition process may also include a recrystalization of a glassy coating layer. This redeposition results in a less transparent and therefore less readable surface on the disc. The layer **52** of FIG. **10** can include microencapsulated solvent beads which will rupture on removal of the adjacent barrier layer **26**.

Embodiments that Include Reading-Inhibit Agents without Barrier Layers

As pointed out above, it is not essential in all embodiments that a barrier layer be included. Rather, in some embodiments it is the act of reading the disc that activates the reading-inhibit agent. For example, optical radiation associated with disc reading, or rotation associated with disc reading can activate the reading-inhibit agent.

As shown in FIG. **12**, one such embodiment includes an optical disc **54** which includes a reading-inhibit agent **56** adjacent one surface. In this case the reading-inhibit agent **56** is a photoactive material that, when activated by suitable optical radiation, is suitably changed in optical or physical characteristics so as to inhibit further reading of the disc. The photoactive material can alternately be dispersed in the bulk of the disk and can for example change from clear to opaque at the wavelength of the reading beam upon exposure to suitable optical radiation. As shown in FIG. **12**, the disc **54** is installed in a reading device **58**. The reading device **58** includes a first optical source such as a laser **60** that directs the reading beam **62** against the disc **54**. Returning radiation from the disc **54** is sensed by a detector **64**, in the conventional manner. In this embodiment, the reading device **58** further includes a second optical source **66**. The second optical source **66** destroys or degrades the optical transmission or reflection required to read the disc. The second source **66** may be a conventional source such as a high pressure arc, an incandescent bulb, a fluorescent lamp, or a laser. As the disc **54** is read, radiation from the second source **62** interacts with the reading-inhibit agent **56** to inhibit further reading of that portion of the disc **54**. The second source **62** is arranged such that the second source **62** does not illuminate any portion of the disc **54** until after that portion of the disc **54** has been read by the reading beam **62**.

In alternate embodiments the reading beam **62** itself may initiate optical changes in the read inhibiting agent **56**, thereby dispensing with the need for the second source **62**.

Alternately, when the second source **62** is used, the need for a separate read inhibit agent **56** may be eliminated. In this case, the second source **66** may for example be a passively q-switched microchip laser focused on the surface of the disc. The effect of this laser is to create scattering centers by ablating the read surface of the disc. The scattering centers reduce the optical transmission of the disc to the reading beam **62**.

In either case, the second source **66** should be interlocked in a way that prevents consumer tampering, and should track in a way so as not to interfere with the initial reading of the disc. When the second source **62** is of sufficient power to provide the ablating action described above, access to the information on the disc will be denied almost immediately after it is read.

FIG. **13** shows another embodiment having a reading-inhibit agent which is activated by the act of reading the disk. In this case an optical disc **70** includes a reservoir **72** that contains a reading-inhibit agent, such as a suitable solvent. The reservoir **72** includes an opening **74**. When the disc is first rotated in order to be read, solvent passes out of the reservoir **72** via the opening **74**, and in this way a small quantity of solvent is released to the disc. The solvent can degrade the optical characteristics of the disc, as discussed

above. to prevent reading of the disc a predetermined time after the solvent has left the reservoir. As one example, the reservoir **72** may be formed in a region bounded by two concentric annular ridges, similar to the stacking rings conventionally used in current optical discs.

Additional Embodiment

FIG. **17** shows a cross-sectional view that illustrates one form of a disc **100** containing a reservoir **102** as discussed immediately above. One or more capillary-tube-sized passages **104** are radially oriented to allow a suitable reading-inhibit agent (such as a solvent or a corrosive agent as discussed above) to flow from the reservoir **102** radially outwardly to the region of the disc that stores information via information-encoding features. The reservoir **102** and the passage **104** are closed by a silicone membrane **108** that defines an array of vents **110**, **112**. In this example, the vents **110**, **112** are formed as pin pricks. The silicone membrane **108** is covered by a polycarbonate sheet **114** that defines vents on **116**, **118** aligned with the vents **110**, **112**, respectively.

A releasable, peel-off label **120** is removably secured by a suitable adhesive to the polycarbonate layer **114**. This peel-off label **122** includes a tab **122** to facilitate removal and a protrusion **124**. The protrusion **124** passes through an opening in the polycarbonate layer **114** and presses the silicone membrane **108** into the passage **104** to create a mechanical valve that stops the flow of reading-inhibit agent radially outwardly from the reservoir **102**. Optionally, the passage **104** may also include a valve element **106** of a material that is dissolved by the reading-inhibit agent. For example, a valve element **106** of aluminum can be used in cases where the reading-inhibit agent is corrosive to aluminum Preferably, the reservoir **102** includes a wick **103** made of cotton or microfiber to retain fluid in the reservoir **102**. The passage **104** may bave a cross-sectional size of 0.02 inch.

Preferably, the peel-off label **120** is sized such that the label must be removed in order to allow the disc **100** to be read. Once the label **120** bas been removed, the vents **110**, **112** are opened, and the protrusion **124** is removed. This allows the silicone membrane **108** to relax upwardly, thereby opening the passage **104**. When the disc **100** is rotated during a reading operation centrifugal force causes the reading-inhibit agent in the reservoir **102** to flow radially outwardly via the passage **104** onto the information-encoding portion of the disc **100**.

In some embodiments the reading-inhibit agent may be selected so as not to interfere with normal reading of the disc **100** until a selected time after the reading-inhibit agent has contacted the information carrying portion of the disc. As an alternative, when the optional valve element **106** is used, the valve element **106** prevents the reading-inhibit agent from reaching the information carrying portion of the disc **100** until the valve element **106** is dissolved by the reading-inhibit agent. In this way, the plug **106** provides a timed release of the reading-inhibit agent onto the information carrying portion of the disc.

Tests have shown that two-pass transmission of the disc typically must fall to about 45 percent of the original value before a significant number of reading errors occur, and to approximately 30 percent of the original value before the disc becomes unplayable.

Conclusion

The optical discs described above have a short effective life, limited either by the number of times the disc is played (e.g. one, two or more times), or by the passage of time after the disc is dispensed (e.g. a selected number of hours after the disc is sold or rented, after the consumer opens a package, or after the disc is inserted into a disc player). The effective life of the disc may be limited in response to reading of the disc, opening of the disc, or rotation of the disc. Various methods for limiting the effective life of the disc have been described, including physical, chemical, and electrochemical methods. Physical methods include the diffusion of air or a component of air such as oxygen, resulting in physical and/or chemical effects; the use of optical activation to cause a physical change in the disc; or the use of physical forces or the removal of forces associated with rotation of the disc or removal of a label to cause a physical change in the disc. Chemical methods include a layer of the disc interacting with a chemical applied when the package is opened or by the vendor at the time of sale. Electrical or electrochemical methods include the use of an electrochemically active system to accelerate corrosion.

It should be apparent from the foregoing detailed description that the present invention can be implemented in a wide variety of forms. Barrier layers can take the form of sheets or patches on a surface of the disc, or of encapsulating packaging. In some cases barrier layers are not required. Reading-inhibit agents can take many forms, including materials which change optical or physical characteristics of the reflecting layer, or various other components of the optical disc. Reading-inhibit agents can be employed as microencapsulated materials, materials formed in layers over selected regions of a disc, or materials incorporated into other components of a disc. Reading-inhibit agents may extend over the entire information-encoding surface of the optical disc, or alternately may be limited to selected portions, for example portions that encode indexing or other introductory information.

It should therefore clearly be understood that the foregoing detailed description is intended by way of illustration, not limitation. It is only the following claims, including all equivalents, that are intended to define the scope of this invention.

We claim:

1. A method for inhibiting reading of an optical disc, comprising the following steps:

(a) providing an optical disc comprising machine-readable, information-encoding features, and a reading-inhibit agent, said inhibit agent activated by optical radiation and operative, once activated, to alter the disc to inhibit reading and to provide a short effective life for the disc;

(b) providing a reading device operative to read the disc, said reading device comprising a source of optical radiation; and

(c) reading the disc with the source while concurrently activating the inhibit agent with optical radiation from the source.

2. A method for inhibiting reading of an optical disc, said method comprising the following steps:

(a) providing an optical disc comprising:

machine-readable, information-encoding features;

a barrier layer releasably coupled to the disc, said barrier layer configured to prevent machine reading of the features; and,

a reading-inhibit agent, included in the disc and activated by removal of the barrier layer, said reading-inhibit agent operative, once activated, to initially allow reading of the disc. and then to alter the disc to inhibit reading of the disc; then

(b) removing the barrier layer to allow machine reading of the features and to activate the reading inhibit agent; then,

(c) reading the disc after removal of the barrier layer but before the disc is altered by the reading inhibit agent to inhibit reading of the disc; and then,

(d) said reading-inhibit agent then altering the disc to provide a short effective life for the disc.

3. The invention of claim 2 wherein the disc comprises a first surface, wherein the features are adjacent the first surface, wherein the inhibit agent is adjacent the features; and wherein the barrier layer is adjacent the inhibit agent.

4. The invention of claim 2 wherein the disc comprises a translucent layer operative to transmit a beam of light toward the features, wherein the inhibit agent is incorporated in or adjacent to the translucent layer, and wherein the barrier layer comprises a sheet adjacent the translucent layer.

5. The invention of claim 2 wherein the disc comprises a reflective film, and wherein the inhibit agent comprises a corrosion-enhancing agent disposed in or adjacent to the reflective film.

6. The invention of claim 2 wherein the inhibit agent is operative, once activated, to alter a physical dimension of the disc.

* * * * *

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Rollhaus, *et al.*	Reissue Application No.:	TBA
Patent No.:	6,343,063	Reissue Application Filing Date:	January 29, 2004
Issue Date:	January 29, 2002		
Title:	**Machine-Readable Optical Disc with Reading-Inhibit Agent**		

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT UNDER 37 C.F.R. § 1.173(b)(2)

Dear Commissioner for Patents:

In the above-referenced Reissue Application, please make the following amendments.

AMENDMENTS

In the Claims:

Pursuant to 37 C.F.R. § 1.173(b)(2), please add the following new claims:

7. (New) A method for inhibiting reading of an optical disc, said method comprising the following steps:

(a) providing an optical disc comprising:

machine-readable, information-encoding features;

a barrier layer releasably coupled to the disc; and,

a reading-inhibit agent, included in the disc and operative after removal of the barrier layer to initially allow reading of the disc, and then to automatically alter the disc to inhibit reading of the disc;

(b) removing the barrier layer so the reading inhibit agent becomes operative; then,

(c) reading the disc after removal of the barrier layer but before the disc is altered by the reading inhibit agent to inhibit reading of the disc; and then,

(d) said reading-inhibit agent altering the disc to provide a short effective life for the disc.

8. (New) An optical media system comprising:

an optical disc having a first substrate and a second substrate, wherein at least one of said first substrate and said second substrate has information encoding features, and fluid communication pathways to the information encoding features; and

a reservoir holding an agent having properties to automatically inhibit the ability to optically read the information encoding features, the reservoir being in fluid communication with the fluid communication pathways in the optical disc; and

a package enclosing the optical disc.

9. (New) The optical media system of claim 8 wherein the agent includes a corrosive agent to cause a controlled corrosion process of the information encoding features.

10. (New) The optical media system of claim 8 wherein the package controls the fluid communication of the agent into the fluid communication pathways.

11. (New) The optical media system of claim 8 wherein the agent includes a fluid to degrade optical characteristics of the disc.

12. (New) An optical media comprising:

a first substrate and a second substrate, wherein at least one of said first substrate and said second substrate has information encoding features; and

a reservoir holding a fluid which, when released, automatically inhibits the ability to optically read the information encoding features.

13. (New) The optical media of claim 12, further comprising a label, wherein removal of the label causes the fluid to be released.

14. (New) The optical media of claim 12, wherein the fluid comprises a limited play agent to limit the playing time of the media.

15. (New) The optical media of claim 13, further comprising a passage, wherein the passage provides a flow path between the reservoir and the information encoding features, and

wherein the contents of the reservoir are released into the passage upon removal of the label.

16. (New) An optical media system comprising:

a first substrate and a second substrate, wherein at least one of said first substrate and said second substrate has information encoding features; and

a reservoir with read inhibiting agent; and

a mechanism to control the flow of the read inhibit agent to automatically alter the ability to optically read the information encoding features.

17. (New) A method for limiting the amount of time to read information stored on an optical media, comprising the acts of:

(a) providing an optical media comprising:

a first substrate and a second substrate, wherein at least one of said first substrate and said second substrate has information encoding features; and

a reservoir having an agent that, when released from the reservoir, automatically inhibits the ability to read the information encoding feature; and

(b) at least partially enclosing the media in a package, the removal of which causes the release of the reading inhibit agent from the reservoir.

18. (New) An optically-readable medium comprising

an information encoded region, said information encoded region readable by an optical beam from an optically-readable medium reading device; and

at least one access limiting agent is bounded by the optically readable medium, said at least one access limiting agent automatically inhibits reading of at least a portion of said information encoded region by the optical beam after a predetermined period of time; and

an enclosure enclosing said optically-readable medium.

19. (New) The optically-readable medium according to 18, wherein said at least one access limiting agent is in communication with at least one of a portion of said information encoded region and the optical beam.

20. (New) The optically-readable medium according to 18, wherein said at least one access limiting agent is located in the optical path of the optical beam.

21. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is an oxidizable material.

22. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is a dye.

23. (New) The optically-readable medium according to claim 22, wherein said dye is initially substantially non-interfering with the optical beam and transforms to a state that substantially interferes with the optical beam after said predetermined period of time.

24. (New) The optically-readable medium according to claim 22, wherein said dye is an oxidizable dye.

25. (New) The optically-readable medium according to claim 22, wherein said access limiting agent inhibits reading of at least a portion of said information encoded region by absorbing light from the optical beam.

26. (New) The optically-readable medium according to claim 18, wherein said information encoded region is a reflective layer.

27. (New) The optically-readable medium according to claim 26, wherein said at least one access limiting agent affects the reflectivity of at least a portion of the reflective layer.

28. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is a hygroscopic material.

29. (New) The optically-readable medium according to claim 18, further comprising a semi-permeable film, said semi-permeable film located on the optically-readable medium, said semi-permeable film regulates said predetermined period of time.

30. (New) The optically-readable medium according to claim 18, wherein said enclosure is a package that is semi-permeable to at least one ambient atmospheric condition.

31. (New) The optically-readable medium according to claim 18, wherein said enclosure is a package that is a barrier between the optically-readable medium and ambient atmospheric conditions.

32. (New) The optically-readable medium according to claim 18, wherein said enclosure is physically coupled to said optically-readable medium.

33. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is a photolytic material.

34. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is a photoreactive material.

35. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is a thermolytic material.

36. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is a thermoreactive material.

37. (New) The optically-readable medium according to claim 18, wherein said access limiting agent optically masks at least a portion of the information encoded region after a predetermined period of time.

38. (New) The optically-readable medium according to claim 18, wherein said predetermined period of time is determined by the number of times at least a portion of the information encoded region is read by the optical beam.

39. (New) The optically-readable medium according to claim 18, wherein said access limiting agent corrodes at least a portion of the information encoded region after a predetermined period of time.

40. (New) The optically-readable medium according to claim 18, wherein said access limiting agent, once activated, increases the optical scattering of at least a portion of the information encoded region after the predetermined period of time.

41. (New) The optically-readable medium according to claim 18, wherein said access limiting agent, once activated, automatically inhibits reading by the optical beam by promoting the deterioration of the at least a portion of the data encoded region.

42. (New) The optically-readable medium according to claim 18, wherein said access limiting agent, once activated, substantially interferes with the optical reading beam after the predetermined period of time.

43. (New) The optically-readable medium according to claim 18, wherein said at least one access limiting agent is contained in microcapsules.

44. (New) The optically-readable medium according to claim 18, wherein said enclosure is physically coupled to said at least one access limiting agent.

45. (New) The optically-readable medium according to claim 18, wherein said enclosure is a package that controls the environment surrounding the optically readable medium.

46. (New) The optically-readable medium according to claim 18, wherein said enclosure is a package that maintains an environment within the package that is separate and distinct from ambient environmental conditions found outside the package.

47. (New) The optically-readable medium according to claim 18, wherein said enclosure is a barrier layer maintains the environmental conditions within the optically readable medium.

48. (New) An optically-readable medium comprising:

a means for storing encoded data, said encoded data is readable by an optical beam from a optically-readable medium reading device; and

a means for automatically preventing the optical beam from reading of at least a portion said encoded data after a predetermined period of time.

49. (New) An optically-readable medium comprising:

an information encoded region, said information encoded region readable by an optical beam from a optically-readable medium reading device;

an enclosure enclosing said optically-readable medium; and

an oxidizable dye located in the optical path of the optical beam,

wherein said oxidizable dye automatically transitions from a first state that is substantially noninterfering with the reading of at least a portion of the information encoded region to a second state that substantially inhibits the reading of at least a portion of the information encoded region after a predetermined period of time from removal of the optically-readable medium from the enclosure.

50. (New) An optically-readable medium comprising:

an information encoded region, said information encoded region readable by an optical beam from a optically-readable medium reading device; and

an enclosure enclosing said optically-readable medium; and

an oxidizing agent in communication with at least a portion of said information encoded region,

wherein said oxidizing agent automatically oxidizes at least a portion of said information encoded region after a predetermined period of time from removal of the optically-readable medium from the enclosure.

51. (New) An optically-readable medium comprising:

an information encoded region, said information encoded region readable by an optical beam from a optically-readable medium reading device; and

an enclosure enclosing said optically-readable medium; and

a physical deformation agent bounded by the optically-readable medium,

wherein said physical deformation agent automatically physical deforms at least a portion of said optically-readable medium after a predetermined period of time from removal of the optically-readable medium from the enclosure.

52. (New) An optically-readable medium comprising

an information encoded region, said information encoded region readable by an optical beam from an optically-readable medium reading device; and

a physical deformation agent bounded by the optically-readable medium,

wherein said physical deformation agent automatically deforms at least a portion of said optically-readable medium after a predetermined period of time.

53. (New) A limited play optically-readable disc, comprising:

at least one substrate having information encoding features with a reflective surface to reflect an incident optical read beam so that the optical read beam may read the information encoding features; and

a limited play agent in at least one optical path, defined between an exterior surface of the disc and the reflective surface, said limited play agent being automatically operable in response to an ambient air condition to inhibit the ability of the optical read beam to read the information encoding features.

54. (New) A limited play optically-readable disc, comprising:

at least one substrate having information encoding features with a reflective surface to reflect an incident optical read beam so that the optical read beam may read the information encoding features; and

a limited play agent in the disc that, once operative, automatically distorts the information encoding features to limit the playing time of the disc.

55. (New) A limited play optically-readable disc, comprising:

at least one substrate having information encoding features with a reflective surface to reflect an incident optical read beam so that the optical read beam may read the information encoding features; and

a limited play agent in at least one optical path, defined between an exterior surface of the disc and the reflective surface, said limited play agent being operable to automatically deteriorate the reflective properties of the reflective surface.

56. (New) A limited play optically-readable disc, comprising:

at least one substrate having information encoding features with a reflective surface to reflect an incident optical read beam so that the optical read beam may read the information encoding features; and

a limited play agent to automatically distort the geometry of the disc and thereby inhibits the ability to read the information encoding features.

57. (New) A limited play optically-readable disc system, comprising:

a limited play optical disc having a limited play agent that, once operative, automatically time limits the ability to read information encoded in the disc; and

a package system enclosing the disc, wherein removal of the disc from the package system triggers the limited play agent into operation to time limit the playability of the disc.

58. (New) A limited play optically-readable disc system, comprising:

a limited play optical disc having a limited play agent that, once operative, automatically limits the ability to read information encoded in the disc to a predetermined number of times; and

a package system enclosing the disc, wherein removal of the disc from the package system triggers the limited play agent into operation to limit the playability of the disc.

59. (New) An optically-readable medium comprising:

an information encoded region, said information encoded region readable by an optical beam from an optically-readable medium reading device; and

at least one access limiting agent in communication with at least one of a portion of said information encoded region and the optical beam, said at least one access limiting agent automatically inhibits reading of at least a portion of said information encoded region by the optical beam after a predetermined period of time; and

an enclosure enclosing said optically-readable medium.

60. (New) A limited play optically-readable medium, comprising:

at least one substrate having information encoding features with a reflective surface to reflect an incident optical read beam so that the optical read beam may read the information encoding features; and

a limited play agent that, once operative, automatically prevents at least a portion of the information encoding features of the limited play optically-readable medium from being read by the incident optical read beam.

61. (New) An optically-readable medium comprising:

an information encoded region, said information encoded region readable by an optical beam from an optically-readable medium reading device; and

at least one access limiting agent affixed to the optically readable medium, wherein said at least one access limiting agent automatically inhibits reading of at least a portion of said information encoded region by the optical beam after a predetermined period of time; and

an enclosure enclosing said optically-readable medium.

REMARKS

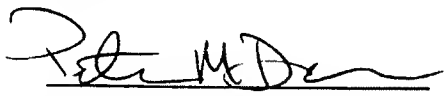
Claims 1-61 are pending. Claims 1-61 are pending in the above-referenced reissue application. Claims 1-6 issued in U.S. Patent No. 6,343,063. Claims 7-61 have been added in this preliminary amendment. The statement of the status and support for all changes to the claims is provided in the paper enclosed with this submission.

CONCLUSION

Applicant encloses herewith a reissue application fee transmittal form indicating the fee to be paid for this Application.

No additional fees are believed to be due in connection with this communication. However, please apply any additional charges, or credit any overpayment, to our Deposit Account No. 08-0219.

Respectfully submitted,



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PTO/SB/51 (07-03)
Approved for use through 01/31/2004. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REISSUE APPLICATION DECLARATION BY THE INVENTOR	Docket Number (Optional) 109960.220 US5

I hereby declare that:
Each inventor's residence, mailing address and citizenship are stated below next to their name.
I believe the inventors named below to be the original and first inventor(s) of the subject matter which is described and claimed in patent number 6,343,063, granted January 29, 2002 and for which a reissue patent is sought on the invention entitled Machine-Readable Optical Disc with Reading-Inhibit Agent,

the specification of which

☒ is attached hereto.

☐ was filed on _____ as reissue application number _____

and was amended on _____.
(If applicable)

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.
I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

☐ I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b). Attached is form PTO/SB/02B (or equivalent) listing the foreign applications.

I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☐ by reason of other errors.

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, such must be stated with an explanation as to the nature of the broadening:

See attached Addendum to Reissue Application Declaration by Inventors

PTO/SB/51 (07-03)
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(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional): 109960.220 US5

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.

Note: To appoint a power of attorney, use form PTO/SB/81.

Correspondence Address: Direct all communications about the application to:

[X] Customer Number: 23483

OR

[ ] Firm or Individual Name					
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Address					
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Telephone		Fax			

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of sole or first inventor (given name, family name): Barbara Rollhaus (Legal Representative of Philip E. Rollhaus)

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Full name of second joint inventor (given name, family name): John R. Powell

Inventor's signature — Date

Residence: Arlington, MA — Citizenship: U.S.

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Inventor's signature — Date

Residence: Sudbury, MA — Citizenship: U.S.

Mailing Address: 8 Harvard Drive, Sudbury MA 01776

[X] Additional joint inventors or legal representative(s) are named on separately numbered sheets forms PTO/SB/02A or 02LR attached hereto

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(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional): 109960.220 US5

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.

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Correspondence Address: Direct all communications about the application to:

[X] Customer Number: 23483

OR

[ ] Firm or Individual Name					
Address					
Address					
City		State		Zip	
Country					
Telephone		Fax			

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of sole or first inventor (given name, family name): Barbara Rollhaus (Legal Representative of Philip E. Rollhaus)

Legal Representative's signature (upon information and belief):

Residence: Palm Beach, FL — Citizenship: U.S.

Mailing Address: 242 Coral Lane, Palm Beach FL 33480

Full name of second joint inventor (given name, family name): John R. Powell

Inventor's signature: J.R.P.11 — Date: January 27, 2004

Residence: Arlington, MA — Citizenship: U.S.

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Full name of third joint inventor (given name, family name): Eric J. Carlson

Inventor's signature: — Date:

Residence: Sudbury, MA — Citizenship: U.S.

Mailing Address: 8 Harvard Drive, Sudbury MA 01776

[X] Additional joint inventors or legal representative(s) are named on separately numbered sheets forms PTO/SB/02A or 02LR attached hereto.

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ISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional): 109960.220 US5

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.

Note: To appoint a power of attorney, use form PTO/SB/81.

Correspondence Address: Direct all communications about the application to:

[X] Customer Number: 23483

OR

[ ] Firm or Individual Name					
Address					
Address					
City		State		Zip	
Country					
Telephone		Fax			

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of sole or first inventor (given name, family name): Barbara Rollhaus (Legal Representative of Philip E. Rollhaus)

Legal Representative's signature (upon information and belief):

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Mailing Address: 242 Coral Lane, Palm Beach FL 33480

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Inventor's signature: Eric J. Carlson — Date: 1/8/04

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[X] Additional joint inventors or legal representative(s) are named on separately numbered sheets forms PTO/SB/02A or 02LR attached hereto.

PTO/SB/02A (08-03)
Approved for use through 08/31/2003. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor
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PTO/SB/02A (08-03)
Approved for use through 08/31/2003. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet

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PTO/SB/02A (01-03)
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DECLARATION — ADDITIONAL INVENTOR(S) Supplemental Sheet

Page 2 of 2

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor		
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Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor		
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City	State	Zip	Country

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor		
Given Name (first and middle (if any))	Family Name or Surname		
Inventor's Signature	Date		
Residence: City	State	Country	Citizenship
Mailing Address			
Mailing Address			
City	State	Zip	Country

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentees: Rollhaus *et al.*

Patent No.: 6,343,063

Issue Date: January 29, 2002

Title: MACHINE-READABLE OPTICAL DISC WITH READING-INHIBIT AGENT

ADDENDUM TO REISSUE APPLICATION DECLARATION BY INVENTORS

I further declare that exemplary errors upon which the reissue application is based include:

- The omission of claims to automatically preventing the reading of the optical media after a limited time or a limited number of uses. That is, no manual intervention is necessary to control when the media becomes unusable.

- The omission of claims to an optically readable media having one or more substrates having information encoding features, at least one access limiting agent, and an enclosure enclosing the optically readable media.

- The omission of claims to an optically-readable media comprising an enclosure and an oxidizable dye, wherein the dye transitions to a state that substantially interferes with the reading of at least a portion of the information encoded region after a predetermined time after removal from the enclosure.

- The omission of claims to an optically readable media comprising a physical deformation agent, wherein the physical deformation agent physically deforms at least a portion of the optically readable media.

- The omission of claims to an optically readable media comprising an oxidizable dye in at least one optical path, the dye being activatable to change its optically transmissive properties to distort the ability of an optical read beam to read the information encoding features.

- The omission of claims to an optical media having a reservoir that holds a fluid which when released distorts the ability to optically read the information encoding features of the media.

- The omission of claims to an optical media system a first and second substrate at least one of which has information encoding features, a reservoir with reading inhibiting agent and a mechanism to control the flow of the reading inhibiting agent to alter the ability to optically read the information encoding features.

I further declare that all errors corrected in this reissue application arose without any deceptive intention on the part of the applicants.

Date: 1/28/04

Upon information and belief:

Barbara Rollhaus
(Legal Representative of Philip E. Rollhaus)

Date: _____ John R. Powell

Date: _____ Eric J. Carlson

Date: _____ Daniel J. Ehntholt

Date: _____ Irwin C. Winkler

Date: _____ Christopher J. Marmo

Date: _____ James R. Valentine

I further declare that all errors corrected in this reissue application arose without any deceptive intention on the part of the applicants.

Upon information and belief:

Date: _____

Barbara Rollhaus
(Legal Representative of Philip E. Rollhaus)

January 27, 2004
Date:

John R. Powell

Date: _____

Eric J. Carlson

January 27, 2004
Date:

Daniel J. Ehnthollt

Date: _____

Irwin C. Winkler

Date: _____

Christopher J. Marmo

Date: _____

James R. Valentine

Atty. Docket No. 109960.220 US5

I further declare that all errors corrected in this reissue application arose without any deceptive intention on the part of the applicants.

Upon information and belief:

Date:	Barbara Rollhaus (Legal Representative of Philip E. Rollhaus)
Date:	John R. Powell
Date: 01/28/04	Eric J. Carlson
Date:	Daniel J. Ehntholt
Date:	Irwin C. Winkler
Date:	Christopher J. Marmo
Date:	James R. Valentine

I further declare that all errors corrected in this reissue application arose without any deceptive intention on the part of the applicants.

Upon information and belief:

Date: _____

Barbara Rollhaus
(Legal Representative of Philip E. Rollhaus)

Date: _____

John R. Powell

Date: _____

Eric J. Carlson

Date: _____

Daniel J. Ehntholt

Date: _____

Irwin C. Winkler

Date: 1/27/04

Christopher J. Marmo

Date: _____

James R. Valentine

I further declare that all errors corrected in this reissue application arose without any deceptive intention on the part of the applicants.

Upon information and belief:

Date:	Barbara Rollhaus (Legal Representative of Philip E. Rollhaus)
Date:	John R. Powell
Date:	Eric J. Carlson
Date:	Daniel J. Ehntholt
Date:	Irwin C. Winkler
Date:	Christopher J. Marino
January 27, 2004 Date:	James R. Valentine

Express Mail Label No. EV225204946US
Date of Deposit: January 29, 2004
Attorney Docket No. 109960.220US5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Rollhaus, *et al.*	Reissue Application No.:	TBA
Patent No.:	6,343,063	Reissue Application Filing Date:	January 29, 2004
Issue Date:	January 29, 2002		
Title:	**Machine-Readable Optical Disc with Reading-Inhibit Agent**		

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

STATEMENT OF STATUS AND SUPPORT FOR ALL CHANGES TO THE CLAIM UNDER 37 C.F.R. §1.173(C)

Dear Commissioner for Patents:

Claims 1-61 are pending in the above-referenced reissue application.

Claims 1-6 issued in U.S. Patent No. 6,343,063. Claims 7-61 have been added in the preliminary amendment accompanying this statement. As a general matter, claims 7-61 have been added to cover optical media systems, optically-readable media, optically-readable discs, and optically-readable disc systems that encompass mechanisms to automatically inhibit the ability to read the information encoding features of the media or disc. Claims 7-61 also cover methods of making such optical media systems, optically-readable media, optically-readable discs, and optically-readable disc systems.

More specifically, claim 7 has been added to cover a method for inhibiting reading of an optical disc that includes the steps of (a) providing an optical disc that includes: machine-readable, information-encoding features; a barrier layer releasably coupled to the disc; and, a reading-inhibit agent, included in the disc and operative after removal of the barrier layer to initially allow reading of the disc, and then to automatically alter the disc to inhibit reading of the disc; (b) removing the barrier layer so the reading inhibit agent becomes operative; then, (c)

reading the disc after removal of the barrier layer but before the disc is altered by the reading inhibit agent to inhibit reading of the disc; and then, (d) the reading-inhibit agent altering the disc to provide a short effective life for the disc. Support for new claim 7 can be found throughout the specification of the issued patent, for example at column 1, lines 29-38; column 2, line 64 through column 3, line 24; and column 11, line 64 through column 12, line 32.

Claim 8 has been added to cover an optical media system that includes an optical disc that includes a reservoir holding an agent having properties to automatically inhibit the ability to optically read the information encoding features. The reservoir is in fluid communication with fluid communication pathways in the optical disc that are also defined by claim 8. The optical media of claim 8 also includes a package enclosing the optical disk. Claims 9-11 have been added to cover specific embodiments of the optical media system of claim 8. Support for these new claims can be found throughout the specification of the issued patent, for example at column 3, lines 34-46 and column 10, line 59 through column 12, line 32.

Claim 12 has been added to cover an optical media system that, like claim 8, includes a reservoir. The reservoir of claim 12 holds a fluid which, when released, automatically inhibits the ability to optically read the information encoding features. Claims 13-15 have been added to cover specific embodiments of the optical media of claim 12. Support for these new claims can be found throughout the specification of the issued patent, for example at column 10, line 59 through column 12, line 32.

Claim 16 has been added to cover an optical media system that, like claims 8 and 12, includes a reservoir. The reservoir of claim 16 holds a read inhibiting agent. The reservoir of claim 16 further includes a mechanism to control the flow of the read inhibit agent to automatically alter the ability to optically read the information encoding features. Support for new claim 16 can be found throughout the specification of the issued patent, for example at column 10, line 59 through column 12, line 32.

Claim 17 has been added to cover a method for limiting the amount of time to read information stored on an optical media. The method includes the acts of: a) providing an optical media that includes, *inter alia*, a reservoir having an agent that, when released from the reservoir, automatically inhibits the ability to read the information encoding feature; and (b) at least

partially enclosing the media in a package, the removal of which causes the release of the reading inhibit agent from the reservoir. Support for new claim 17 can be found throughout the specification of the issued patent, for example at column 3, lines 3-8; and column 10, line 59 through column 12, line 32.

Claim 18 has been added to cover an optically-readable medium that includes at least one access limiting agent that is bounded by the optically readable medium and an enclosure enclosing the optically-readable medium. The access limiting agent of claim 18 automatically inhibits reading of at least a portion of the information encoded region by the optical beam after a predetermined period of time. Support for new claim 18 can be found throughout the specification of the issued patent, for example at column 1, lines 29-38; column 2, line 64 through column 3, line 24; column 4, lines 54-64; column 6, lines 6-13; column 11, lines 21-36; and column 11, line 64 through column 12, line 32.

Claims 19-47 have been added to cover specific embodiments of the optical media system of claim 18. More specifically, new claim 19 has been added to clarify that the access limiting agent is in communication with at least one of a portion of the information encoded region and the optical beam. Support for new claim 19 can be found throughout the specification of the issued patent, for example at column 3, lines 13-18; column 10, lines 35-37; and column 11, lines 7-20.

New claim 20 has been added to clarify that the access limiting agent is located in the optical path of the optical beam. Support for new claim 20 can be found throughout the specification of the issued patent, for example at column 7, line 46 through column 8, line 51; column 9, line 49 through column 10, line 6; and column 10, lines 15-58.

New claims 21-25, 28, and 33-43 have been added to specify the access limiting agent. Support for these new claims can be found throughout the specification of the issued patent, for example at column 1, lines 44-46; column 1, lines 59-62; column 3, line 25 through column 8, line 51; column 8, line 54 through column 11, line 5; column 11, lines 47-50; and column 12, lines 28-37.

New claim 26 has been added to further specify that the information encoded region is a reflective layer. New claim 27 has been added to cover a further embodiment of new claim 26. Support for these new claims can be found throughout the specification of the issued patent, for example at column 3, lines 25-39.

New claim 29 has been added to cover a further embodiment of new claim 18 that includes a semi-permeable film. Support for new claim 29 can be found throughout the specification of the issued patent, for example at column 3, lines 46-54; column 4, lines 58-61; column 6, lines 9-10; and column 9, lines 41-48.

New claims 30-32 and 44-47 have been added to cover further embodiments of new claim 18 with regard to the enclosure. Support for these new claims can be found throughout the specification of the issued patent, for example at column 2, line 64 through column 3, line 8; column 3, lines 19-24; column 3, lines 46-54; column 4, lines 58-61; column 6, lines 9-10; column 8, lines 48-51; column 9, lines 41-48; and column 11, lines 21-46.

Claim 48 has been added to cover an optically-readable medium that includes a means for automatically preventing the optical beam from reading of at least a portion said encoded data after a predetermined period of time. Support for new claim 48 can be found throughout the specification of the issued patent, for example at column 1, lines 29-62 and column 11, line 64 through column 12, line 32.

Claim 49 has been added to cover an optically-readable medium that includes an enclosure enclosing the optically-readable medium and an oxidizable dye located in the optical path of the optical beam. The oxidizable dye of claim 49 automatically transitions from a first state that is substantially noninterfering to a second state that substantially inhibits the reading of at least a portion of the information encoded region after a predetermined period of time from removal from the enclosure. Support for new claim 49 can be found throughout the specification of the issued patent, for example at column 7, line 46 through column 8 line 51.

Claim 50 has been added to cover an optically-readable medium that includes an enclosure enclosing said optically-readable medium and an oxidizing agent in communication with at least a portion of said information encoded region. The oxidizing agent of claim 50

automatically oxidizes at least a portion of said information encoded region after a predetermined period of time from removal of the optically-readable medium from the enclosure. Support for new claim 50 can be found throughout the specification of the issued patent, for example at column 3, line 25 through column 7, line 44.

Claim 51 has been added to cover an optically-readable medium that includes an enclosure enclosing the optically-readable medium and a physical deformation agent bounded by the optically-readable medium. The physical deformation agent automatically physically deforms at least a portion of the optically-readable medium after a predetermined period of time from removal of the optically-readable medium from the enclosure. Support for new claim 51 can be found throughout the specification of the issued patent, for example at column 3, line 25 through column 7, line 44 and column 8, line 52 through column 9, line 48.

Claim 52 has been added to cover an optically-readable medium that, like claim 51, includes a physical deformation agent. Claim 52 does not include an enclosure. Support for new claim 52 can be found throughout the specification of the issued patent, for example at column 3, line 25 through column 7, line 44 and column 8, line 52 through column 9, line 48.

Claim 53 has been added to cover an optically-readable disc that includes a limited play agent in at least one optical path. The limited play agent of claim 53 is defined between an exterior surface of the disc and the reflective surface and is automatically operable in response to an ambient air conditions to interfere with the ability of the optical read beam to read the information encoding features. Support for new claim 53 can be found throughout the specification of the issued patent, for example at column 3, lines 13-18; column 3, lines 46-54; and column 4, lines 44-63.

Claim 54 has been added to cover an optically-readable disc that includes a limited play agent in the disc that, once operative, automatically distorts the information encoding features to limit the playing time of the disc. Support for new claim 54 can be found throughout the specification of the issued patent, for example at column 3, line 25 through column 7, line 44; column 8, line 52 through column 9, line 48; and column 10, line 59 through column 11, line 57.

Claim 55 has been added to cover an optically-readable disc that includes a limited play agent in at least one optical path. The limited play agent of claim 55 is operable to automatically deteriorate the reflective properties of the reflective surface. Support for new claim 55 can be found throughout the specification of the issued patent, for example at column 3, lines 13-18; column 3, lines 25-54; column 4, lines 44-63; and column 10, line 59 through column 11, line 5.

Claim 56 has been added to cover an optically-readable disc that includes a limited play agent to automatically distort the geometry of the disc and thereby inhibit the ability to read the information encoding features. Support for new claim 56 can be found throughout the specification of the issued patent, for example at column 8, line 52 through column 9, line 49.

Claims 57 and 58 have has been added to cover an optically-readable disc system that includes a limited play optical disc and a package system enclosing the disc. The package system of claim 57 triggers the limited play agent into operation to limit or to time limit the playability of the disc. Removal of the disc from the package system of claim 48 triggers the limited play agent into operation. Support for these claims can be found throughout the specification of the issued patent, for example at column 3, lines 3-8; column 8, lines 48-51; and column 11, lines 21-56.

Claim 59 has been added to cover an optically-readable medium that includes an at least one access limiting agent in communication with at least one of a portion of the information encoded region and an enclosure enclosing the optically-readable medium. The access limiting agent of claim 59 automatically inhibits reading of at least a portion of the information encoded region by the optical beam after a predetermined period of time. Support for new claim 59 can be found throughout the specification of the issued patent, for example at column 3, lines 3-8; column 3, lines 13-18; column 8, lines 48-51; column 11, line 64 through column 12, line 32.

Claim 60 has been added to cover an optically-readable medium that includes at least one substrate having information encoding features with a reflective surface and a limited play agent that, once operative, automatically prevents at least a portion of the information encoding features of the limited play optically-readable medium from being read by the incident optical read beam. Support for new claim 60 can be found throughout the specification of the issued

patent, for example at column 1, lines 29-63; column 3, lines 3-8; column 3, lines 13-18; column 8, lines 48-51; and column 11, line 64 through column 12, line 32.

Claim 61 has been added to cover an optically-readable medium that includes at least one access limiting agent affixed to the optically readable medium and an enclosure enclosing said optically-readable medium. The access limiting agent of claim 61 automatically inhibits reading of at least a portion of the information encoded region by the optical beam after a predetermined period of time. Support for new claim 60 can be found throughout the specification of the issued patent, for example at column 1, lines 29-63; column 3, lines 3-8; column 3, lines 13-18; column 8, lines 48-51; and column 11, line 64 through column 12, line 32.

Respectfully submitted,

Peter M. Dichiara, Esq.
Reg. No. 38,005

Date: January 29, 2004
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Express Mail Label No. EV225204946US
Date of Deposit: January 29, 2004
Attorney Docket No. 109960.220 US5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Rollhaus, *et al.*	Group Art Unit	TBA
Application No.:	TBA	Examiner	TBA
Filing Date:	January 29, 2004		
Title:	**Machine-Readable Optical Disc with Reading-Inhibit Agent**		

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION PURSUANT TO 37 C.F.R. § 1.47(a)

Applicants hereby petition to allow the above-identified application to be made on behalf of inventor Irwin Winkler.

Accompanying this petition are:

(1) a declaration signed by the remaining inventors; and

(2) a Statement of Facts in Support of Filing on Behalf of an Unavailable Inventor signed by M. Scott Carey, Vice President of Legal Affairs, at Flexplay Technologies, Inc. containing attachments in support thereof.

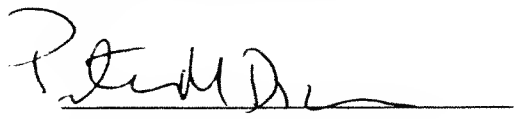
Mr. Winkler's last known home address is:

24 Gould Road
Arlington, MA 02476-8116

The Commissioner is authorized to charge Deposit Account No. 08-0219 the $130.00 fee to cover the cost of the petition according to 37 C.F.R. § 1.17(h). No other fees are believed to be due in connection with this submission. However, please charge any fees or credit any overpayment to Deposit Account No. 08-0219.

If there are any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,



Peter M. Dichiara, Esq.
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PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Rollhaus, et al.**	Confirmation No.: **5348**
Application No. **10/767,961**	Art Unit: **2627**
Filed: **January 29, 2004**	Examiner: **David Davis**
For: **Machine-Readable Optical Disc With Reading-Inhibit Agent**	Attorney Docket No.: **13058.105001**

PRELIMINARY AMENDMENT FILED AFTER RCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

On March 12, 2008, Applicants submitted a Request for Continued Examination and a Response with additional amendments and remarks. Applicants now submit additional claim amendments as set forth herein and respectfully request that these amendments be entered.

Amendments begin on page 2 of this document.
Remarks begin on page 6 of this document.

I hereby certify that this correspondence is being electronically transmitted via EFS-Web to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 15, 2009.

/ Robert T. Neufeld /
Robert T. Neufeld, Reg. No. 48,394

AMENDMENTS

In the Claims

Please enter the following amendments to the claims:

1. (Original) A method for inhibiting reading of an optical disc, comprising the following steps:

(a) providing an optical disc comprising machine-readable, information-encoding features, and a reading-inhibit agent, said inhibit agent activated by optical radiation and operative, once activated, to alter the disc to inhibit reading and to provide a short effective life for the disc;

(b) providing a reading device operative to read the disc, said reading device comprising a source of optical radiation; and

(c) reading the disc with the source while concurrently activating the inhibit agent with optical radiation from the source.

2. (Original) A method for inhibiting reading of an optical disc, said method comprising the following steps:

(a) providing an optical disc comprising:

machine-readable, information-encoding features;

a barrier layer releasably coupled to the disc, said barrier layer

configured to prevent machine reading of the features; and,

a reading-inhibit agent, included in the disc and activated by removal of the barrier layer, said reading-inhibit agent operative, once activated, to initially allow reading of the disc, and then to alter the disc to inhibit reading of the disc; then

(b) removing the barrier layer to allow machine reading of the features and to activate the reading inhibit agent; then,

(c) reading the disc after removal of the barrier layer but before the disc is altered by

the reading inhibit agent to inhibit reading of the disc; and then,

(d) said reading-inhibit agent then altering the disc to provide a short effective life for the disc.

3. (Original) The invention of claim 2 wherein the disc comprises a first surface, wherein the features are adjacent the first surface, wherein the inhibit agent is adjacent the features: and wherein the barrier layer is adjacent the inhibit agent.

4. (Original) The invention of claim 2 wherein the disc comprises a translucent layer operative to transmit a beam of light toward the features, wherein the inhibit agent is incorporated in or adjacent to the translucent layer, and wherein the barrier layer comprises a sheet adjacent the translucent layer.

5. (Original) The invention of claim 2 wherein the disc comprises a reflective film, and wherein the inhibit agent comprises a corrosion-enhancing agent disposed in or adjacent to the reflective film.

6. (Original) The invention of claim 2 wherein the inhibit agent is operative, once activated, to alter a physical dimension of the disc.

Claims 7-19 are canceled.

20. (New) The optically readable medium according to claim 60, wherein said reading-inhibit agent is located in the path of the incident optical read beam.

21. (New) The optically-readable medium according to claim 60, wherein said reading-inhibit agent is selected from one of an oxidizable material, a dye, a hygroscopic material, a photoreactive material, or a combination thereof.

Claims 22-24 are canceled.

25. (New) The optically-readable medium according to claim 60, wherein said reading-

inhibit agent inhibits reading of the at least a portion of said information encoded features by one of absorbing light from the optical beam, altering the reflectivity of the reflective layer, or physically distorting or altering a portion of the optically-readable medium.

Claims 26-32 are canceled.

33. (New) The optically-readable medium according to claim 60, wherein said reading-inhibit agent is activated by optical radiation.

Claims 34-37 are canceled.

38. (New) The optically-readable medium according to claim 60, wherein said short effective life for said optically-readable medium is determined by the number of times the at least a portion of the information encoded features is read by the optical beam.

39. (New) The optically-readable medium according to claim 60, wherein said reading-inhibit agent corrodes the at least a portion of the information encoded features.

40. (New) The optically-readable medium according to claim 60, wherein said reading-inhibit agent, once activated, increases optical scattering of the at least a portion of the information encoded features.

41. (New) The optically-readable medium according to claim 60, wherein said reading-inhibit agent, once activated, inhibits reading by the optical beam by promoting deterioration of the at least a portion of the information encoded features.

42. (New) The optically-readable medium according to claim 60, wherein said reading-inhibit agent, once activated, interferes with the optical beam.

Claims 43-58 are canceled.

59. (New) An optically-readable medium comprising:

an information encoded region, said information encoded region readable by an optical beam from a reading device;

at least one reading-inhibit agent in communication with at least one of a portion of said information encoded region and the optical beam, wherein said at least one reading-inhibit agent inhibits reading of at least a portion of said information encoded region by the optical beam after a predetermined period of time after removal of an enclosure; and

the enclosure enclosing said optically-readable medium wherein said at least one reading-inhibit agent provides a short effective life for said optically-readable medium.

60. (New) An optically-readable medium, comprising:

at least one substrate having information encoded features with a reflective layer to reflect an incident optical read beam so that the optical read beam may read the information encoded features; and

a reading-inhibit agent included in the optically-readable medium that, once operative, prevents at least a portion of the information encoded features from being read by the incident optical read beam wherein said reading-inhibit agent provides a short effective life for said optically-readable medium.

Claim 61 is canceled.

62. (New) The optically-readable medium according to claim 59, wherein said reading-inhibit agent is selected from one of an oxidizable material, a dye, a hygroscopic material, a photoreactive material, or a combination thereof.

63. (New) The optically-readable medium according to claim 59, wherein said reading-inhibit agent inhibits reading of the at least a portion of said information encoded features by one of absorbing light from the optical beam, altering the reflectivity of the reflective layer, or physically altering a portion of the optically-readable medium.

REMARKS

I. Status of Claims Pursuant to 37 CFR § 1.173(c)

Claims 1-6 are the pending original claims.

Claims 7-19 are canceled.

Claims 20-21 are pending.

Claims 22-24 are canceled.

Claim 25 is pending.

Claims 26-32 are canceled.

Claim 33 is pending.

Claims 34-37 are canceled.

Claims 38-42 are pending.

Claims 43-58 are canceled.

Claims 59-60 are pending

Claim 61 is canceled.

Claims 62 and 63 are pending.

II. Amendments to Claims and Support Thereof Pursuant to 37 CFR § 1.173(c)

Applicant has made minor amendments to the claim set that was submitted with the Request For Continued Examination on March 12, 2008. As required by 37 CFR § 1.173(c), Applicant provides the following summary of the claim amendments and citations to the specification to support these amendments.

Claim 20 has been amended to replace "at least one access limiting agent" with "reading-inhibit agent". This change is consistent with the specification as "reading-inhibit agent" is used throughout the specification of the issued patent, for example, at column 2, line 30; column 2, line 58; and column 7, line 45.

Claim 21 has been amended to replace "at least one access limiting agent" with "reading-inhibit agent". Support for this amendment is provided in the previous paragraph. Claim 21 also has been amended to recite "a dye, a hygroscopic material, a photoreactive material, or a combination thereof." These examples of reading-inhibit agents were previously in claims 28, 33, and 34, for example, before they were canceled. Support for these examples of reading-

inhibit agents can be found throughout the specification of the issued patent, for example, at column 8, line 54 - column 9, line 48; and column 10, lines 7-40.

Claim 25 has been amended to replace "at least one access limiting agent" with "reading-inhibit agent". Support for this amendment is provided above. Claim 21 also has been amended to recite "altering the reflectivity of the reflective layer, or physically distorting or altering a portion of the optically-readable medium." Support for this amendment can be found throughout the specification of the issued patent, for example, at column 8, line 54 - column 9, line 48; and column 3, lines 23-54.

Claims 33, 39, 40, 41 and 42 have been amended to recite "reading-inhibit agent" instead of "at least one access-limiting agent". Support for this amendment is provided above.

Claim 38 has been amended to recite "short effective life for said optically-readable medium." Support for this amendment can be found throughout the specification of the issued patent, for example, at column 11 line 64 - column 12, line 5.

Claim 59 has been amended to include the phrase "after removal of an enclosure". Support for this amendment can be found throughout the specification of the issued patent, for example, at column 2, line 56 - column 3, line 24.

Claim 60 has been amended to include the phrase "included in the optically-readable medium". Support for this amendment can be found throughout the specification of the issued patent, for example, at column 4, lines 44-50; and column 8, lines 10-16.

Claim 62 has been added. Support for this new claim can be found throughout the specification of the issued patent, for example, at column 8, line 54 - column 9, line 48; and column 10, lines 7-40.

Claim 63 has been added. Support for this new claim can be found throughout the specification of the issued patent, for example, at column 8, line 54 - column 9, line 48; and column 3, lines 23-54.

CONCLUSION

Applicant and the undersigned thank Examiner Davis for considering these amendments and remarks. If the Examiner believes that any issues exist that can be resolved by telephone conference, or that any formalities exist that can be corrected by an Examiner's Amendment,

please contact the undersigned at (404) 572-3505.

Respectfully submitted,

/ Robert T. Neufeld /

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PTO/SB/51 (05-08)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REISSUE APPLICATION DECLARATION BY THE INVENTOR	Docket Number (Optional) 13058.105001

I hereby declare that:

Each inventor's residence, mailing address and citizenship are stated below next to their name.

I believe the inventors named below to be the original and first inventor(s) of the subject matter which is described and claimed in patent number 6,343,063, granted January 29, 2002, and for which a reissue patent is sought on the invention entitled Machine-Readable Optical Disc with Reading Inhibit Agent,

the specification of which

☐ is attached hereto.

☒ was filed on January 29, 2004 as reissue application number 10/767,961
and was amended on 6/30/06; 1/14/08; 3/12/08; and 4/15/09.
(If applicable)

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

☐ I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b). Attached is form PTO/SB/02B (or equivalent) listing the foreign applications.

I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☐ by reason of other errors.

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, such must be stated with an explanation as to the nature of the broadening:

This is a broadening reissue application. See attached Addendum to Reissue Applicaton Declaration by Inventors.

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(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional)
13058.105001

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.

Note: To appoint a power of attorney, use form PTO/SB/81.

Correspondence Address : Direct all communications about the application to:

☒ The address associated with Customer Number : 20786

OR

☐ Firm or Individual Name					
Address					
City		State		ZIP	
Country					
Telephone		Email			

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of sole or first inventor (given name, family name)
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Full name of second joint inventor (given name, family name)

Inventor's signature	Date
Residence	Citizenship
Mailing Address	

☒ Additional joint inventors or legal representative(s) are named on separately numbered sheets form PTO/SB/02A or 02LR attached hereto.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

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Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

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DECLARATION

ADDITIONAL INVENTOR(S)
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DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet
Page 1 of 1

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DECLARATION

ADDITIONAL INVENTOR(S)
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Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor		
Given Name (first and middle (if any))	Family Name or Surname		
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Mailing Address			
City	State	Zip	Country

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DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet

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Mailing Address			
City	State	Zip	Country

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor		
Given Name (first and middle (if any))	Family Name or Surname		
Inventor's Signature			Date
Residence: City	State	Country	Citizenship
Mailing Address			
City	State	Zip	Country

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DECLARATION Supplemental Sheet
For Legal Representatives (35 U.S.C. 117) On Behalf of A Deceased or Incapacitated Inventor

Enter Deceased or Incapacitated Inventor's Name Philip Rollhaus Page_____ of _____

Name of Legal Representative:	☐ A petition has been filed for this non-signing legal representative		
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Mailing Address 242 Coral Lane			
City Palm Beach	State FL	Zip 33480	Country U.S.
Name of Additional Legal Representative, if any:	☐ A petition has been filed for this non-signing legal representative		
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Legal Representative's Signature	Date		
Residence: City	State	Country	Citizenship
Mailing Address			
Mailing Address			
City	State	Zip	Country
Name of Additional Legal Representative, if any:	☐ A petition has been filed for this non-signing legal representative		
Given Name (first and middle (if any))	Family Name or Surname		
Legal Representative's Signature	Date		
Residence: City	State	Country	Citizenship
Mailing Address			
Mailing Address			
City	State	Zip	Country

This collection of information is required by 35 U.S.C. 117 and 37 CFR 1.42, 1.43, 1.63 and 1.64(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Atty. Docket No. 13058.105001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentees: Rollhaus *et al.*

Patent No.: 6,343,063

Issue Date: January 29, 2002

Reissue Application Serial No.: 10/767,961

Title: MACHINE-READABLE OPTICAL DISC WITH READING-INHIBIT AGENT

ADDENDUM TO REISSUE APPLICATION DECLARATION BY INVENTORS

This is a broadening reissue application. I further declare that exemplary errors upon which the reissue application is based include:

- The omission of claims to an optically-readable medium having an information encoded region, at least one reading-inhibit agent, and an enclosure enclosing the optically readable medium.
- The omission of claims to an optically-readable medium having a substrate having information encoded features with a reflective layer and a reading-inhibit agent that prevents at least a portion of the information encoded features from being read wherein said reading-inhibit agent provides a short effective life for the optically readable medium.
- The omission of claims to an optically-readable medium comprising an enclosure and a reading-inhibit agent selected from one or more of an oxidizable material, a dye, a hygroscopic material, or a photoreactive material.
- The omission of claims to an optically-readable medium comprising a reading-inhibit agent providing a short effective life for the optically-readable medium, the reading-inhibit agent selected from one or more of an oxidizable material, a dye, a hygroscopic material, or a photoreactive material.
- The omission of claims to an optically-readable medium comprising a reading-inhibit agent where the short effective life for the medium is determined by the number of times the optically-readable medium is read by an optical beam.
- The omission of claims to an optically-readable medium comprising a reading-

inhibit agent providing a short effective life for the optically-readable medium, the reading-inhibit agent corroding at least a portion of the information encoded features on the optically-readable medium.

- The omission of claims to an optically-readable medium comprising a reading-inhibit agent providing a short effective life for the optically-readable medium, the reading-inhibit agent, once activated, interfering with an optical beam for reading the optically-readable medium.

I further declare that all errors corrected in this reissue application arose without any deceptive intention on the part of the applicants.

Upon information and belief:

Date: _____ Barbara Rollhaus
(Legal Representative of Philip E. Rollhaus)

Date: _____ John R. Powell

Date: _____ Eric J. Carlson

Date: _____ Daniel J. Ehntholt

Date: _____ Irwin C. Winkler

Date: _____ Christopher J. Marmo

Date: _____ James R. Valentine